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ABSTRACT

Designed to aid the classroom teacher in the improvement of instruction through television, this manual consists of two parts: program utilization guide and equipment utilization guide. The first part introduces the jargon and history of this system of mass communication, and discusses the appropriate ways to incorporate TV into the classroom. Discussed are: segments of an instructional television series (their goals, educational implications and applications); samples of useful classroom activities as supplemental aids to instruction; and optimum seating arrangement for TV viewing; and ways of planning for the purchase of video equipment. The second part deals with planning, common mistakes in beginning TV productions, blocking the set, lighting, applications of video in the classroom, production crews, the development of a TV club and student production, maintenance of equipment, and various materials for TV. (CH)

ED 089742

TV IN THE CLASSROOM

UTILIZATION MANUALS

D. F. ENGELKING
STATE SUPERINTENDENT OF PUBLIC INSTRUCTION

BOISE, IDAHO

IR 000 454

ED 089742

TV IN THE CLASSROOM

Utilization Manuals

IDAHO STATE DEPARTMENT OF EDUCATION

Division of Instructional Improvement

Prepared by

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EDUCATION & WELFARE
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TV IN THE CLASSROOM

Utilization Manuals

Idaho State Department of Education

Approved
July 24, 1972
by the Idaho State Board of Education
for use in the Public Schools of Idaho

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FOREWORD

The State Department of Education of Idaho, in order to serve the interests and needs of the teachers throughout the State, as well as the educational needs of the students of the State, is publishing this guide to effective use of television as a classroom tool. The manual was organized and developed by the State Consultant for Educational Television. It is intended to aid the classroom teacher in the improvement of instruction through the media of television.

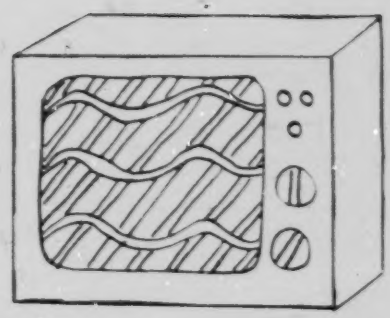
This manual has been prepared as one component in the proper use, and greater use of the advancing technology. A step-by-step approach has been adopted to help suggest some meaningful and appropriate uses of television by schools, teachers, and students. Successful utilization of programming and equipment is essential to an improved opportunity for a quality education.

Many studies have been made of the benefits derived from classroom utilization of TV. Motivation and learning is definitely enhanced. Television provides a supplement to classroom activity that is available in no other way. Television also enables the student, and teacher, to learn and improve through self-analysis.

Education must take advantage of the advancements in this technology, and also be a leader in the change in society which is being produced as a result of this improved technology. Television is one of the strongest influences on the public today. The proper use of television in the school can be a tremendous tool toward cultural and intellectual betterment.

ACKNOWLEDGEMENTS

Sincere appreciation is given to the Migrant Education Resource Center, Nampa, Idaho, and the Boise School District for the assistance given in the preparation of this manual. Photographs by Bill Richmond, Staff Photographer, MERC. The equipment pictured herein is shown to typify the state of the art and not as an endorsement of specific brands or models.



ETV/ITV GUIDE #I

PROGRAM UTILIZATION GUIDE

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Educational Television
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THE IDAHO ETV NETWORK

Educational television, or perhaps more properly public television (non-commercial broadcast television), has come to Idaho. Education may be improved with the utilization of TV programming designed and presented for instructional use within the classroom. Many programs aired as public interest presentations on PTV and the commercial channels may be incorporated into the classroom activities as well.

Before discussing the appropriate ways to incorporate TV into the classroom, perhaps it is best to begin with a bit of background in the jargon and history of this system of mass communication. In most books or manuals the terminology is contained in a glossary in an appendix section at the end of the publication. The glossary is introduced here, and included in the body of this presentation, because of the importance and informational value of the language of television.

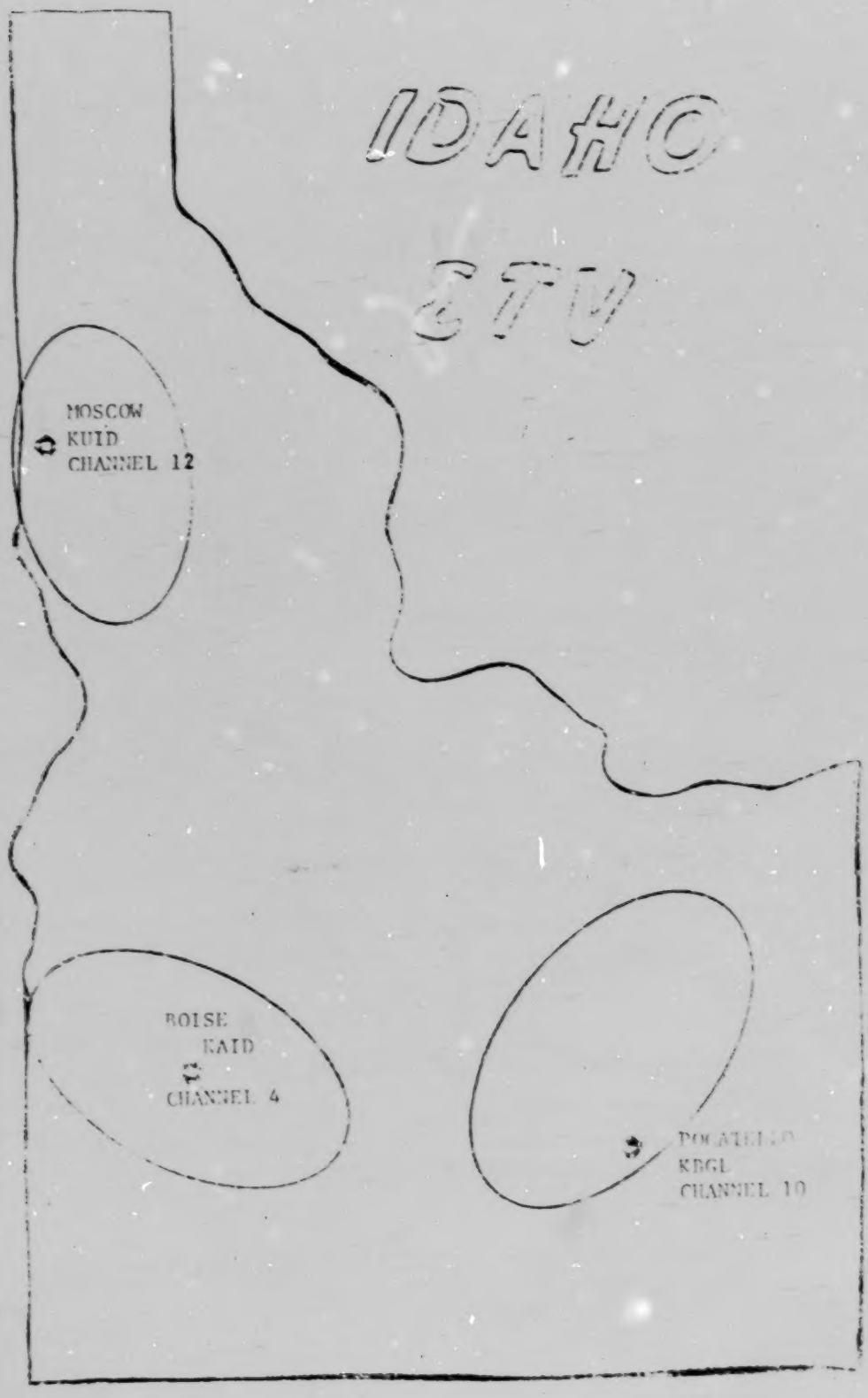
Glossry

ETV

Educational television has been the broad term used for the non-commercial broadcast media. The connotation that the programming is totally educational in presentation and purpose is a misunderstanding which should be corrected.

ITV

Instructional television is that portion of the non-commercial broadcast time devoted to programming specifically produced as an aid to in-classroom instruction of curricular topics. ITV is used for the formal education of the viewer.


IDAHO
ETV
MOSCOW
KUID
CHANNEL 12
BOISE
KAID
CHANNEL 4
KBGL
CHANNEL 10

PTV

Public television is the new title given non-commercial broadcast media. Public television consists of three distinct programming emphases: (1) educational or instructional presentations; (2) informational and current-event segments; and (3) public interest (cultural) programming. It might be said that this is the new image, "public television" rather than "educational television."

CPB

The Corporation for Public Broadcast was created by a congressional act in 1967 as a non-profit corporation designed to promote the growth and collective development of the Nation's non-commercial television and radio broadcast systems. The Ford Foundation and other charitable organizations aid in the support of the corporation.

PBS

Public Broadcast Service is an independent organization chartered in 1969 by the management of Public Broadcast facilities. The aim was to manage and operate the Nation's Fourth Network, collecting all of the non-commercial stations into a cooperative programming network. The collective organization of some 212 operating television facilities has improved the distribution and quality of programming presented across the country.

KUID, KBGL, KAID

The three Idaho PTV stations are cooperatively organized as a state network for the benefit of all Idaho residents. KUID, the oldest of the three stations, began operations in 1965 as a part of the academic program of the University of Idaho. KBGL, operated on the campus of

Idaho State University, came on the air July 7, 1971. KAID, Boise State College, followed December 31, 1971. Collectively the three stations are broadcasting to over 70 percent of the population of Idaho. Eventually a microwave interconnect system will link these three stations for simultaneous broadcast and distribution to additional translators to reach almost every community.

CATV

Cable television distributes station signals over a closed circuit system throughout an area. The primary purpose of such distribution is to improve the local station signal and to bring far away signals to a broader audience.

In Idaho about 60 percent of the chartered municipalities have either a community operated or commercially operated cable system.

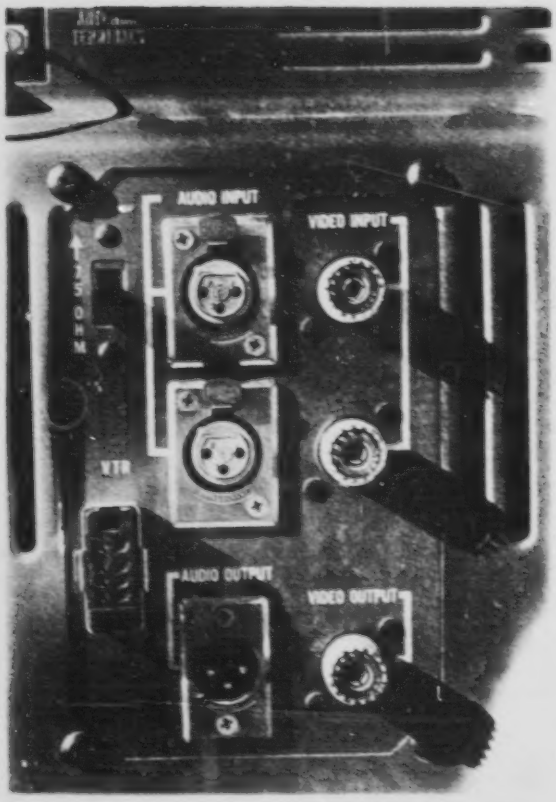
CCTV

Closed circuit television is similar to CATV, except for the range of distribution. Generally, a closed circuit system is confined to a building or collection of buildings closely arranged under a single operation. Construction specifications of all future public buildings should include the channeling of a closed circuit system.

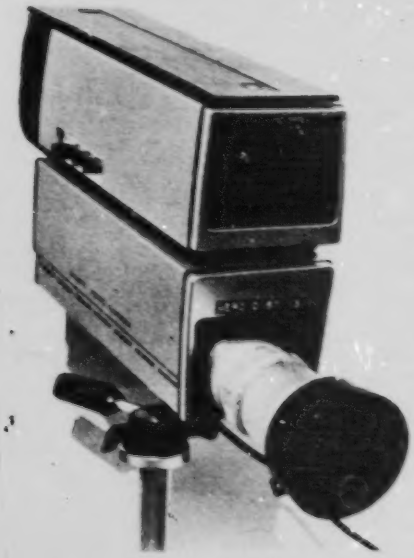
Radio and Television (Audio and Visual)

Radio is the electronic transmission of sound. Television is the electronic transmission of pictures. A successful demonstration of television came a full two years before radio. TV is both television and radio transmission and reception.

VIDEO TAPE RECORDER
(VTR)



"JEEPED" RECEIVER
(MONITOR)



VIDEO CAMERA

VTR

A video tape recorder is capable of electronically recording moving pictures, much the same as an audio tape recorder electronically records sound. VTR magnetically translates electronic input from a light sensitive source onto a tape for storage.

Receiver (Monitor)

A receiver is an electronic machine capable of receiving and transforming electronic impulses into a visual display. The receiver is capable of receiving multiple channels by the use of a channel selector. A monitor is a single channel receiver, reproducing images from a direct source - VTR, camera, multiplexer, etc.

Jeeped Receiver

To "jeep" a television receiver is to modify the circuitry of the set so that it will accept a direct input from some video source and also act as an output for a VTR.

RF Adapter

An RF adapter is a device attached to a VTR to allow reception by a standard receiver, over a specified channel frequency.

Camera

The television camera contains an optical system and light sensitive electronic pick-up which will convert the visual image into electrical impulses and transmit such impulses to a VTR, or to a receiver monitor.

Channel

A channel is a specific band of frequencies assigned a given radio or television broadcast facility. A channel selector has twelve

pre-set channels in the VHF (very high frequency) range, and sixty-seven channels on a sliding scale in the UHF (ultra high frequency) range. Fine tuning allows some variation of frequency alignment for best reception results.

Contrast

Contrast is the difference of intensity between the light and dark areas of the picture. High contrast, which gives a great variation of extreme brightness and blacks, often produces glare and after images. Low contrast does not produce sufficient definition of the picture. Definition is the distinctness of a clear sharp image.

Frame

The frame is the single complete image as a still picture in a series of pictures producing the effect of motion.

Frequency

The number of frames scanned per second is the frequency. The present television standard is 30 frames/second.

Monochrome

Monochrome or monochromatic refers to black and white images, actually varying shades of gray.

Gray Scale

The variation of the tonal value of shades of gray from white to black which are visably distinguishable on a television screen is the gray scale of the system. The greater the number of distinguishable tones, the greater is the resolution.

Resolution

The degree of fine detailed response of the picture is referred to as the resolution.

SPOT LIGHTS

SCOOP

BROAD WITH
BARN DOORS

Switcher

An electronic device allowing the change of input signal from one source to another is called "a switcher." If it allows both direct change from one format input to another, and gradual change through superimposition, it is called "a switcher-fader."

Viewfinder

The viewfinder of a video camera is a small monitor built into the circuitry enabling the cameramen to see the picture being scanned by the camera.

Bicycle

To bicycle a tape is to physically transport the tape from one location to another, by any means.

Film Chain

The film chain is used to transfer the images produced by films and 35mm slides directly to the video camera.

Film Clip

A short segment of a film inserted in the TV presentation is called "a film clip."

Iris

The iris is an adjustable opening built into the lens of the camera permitting a control of the light entering the camera. It may be operated either manually or automatically.

Kinescope

A kinescope is the transfer of a video image into a film image.

Lighting

Backlight: The illumination of a subject from above and behind.

VIDEO CAMERA
WITH
VIEWING MONITOR

ZOOM LENS

Adjustments (Top to Bottom)

Focusing ring
Variable focal length (zoom)
Aperture setting

Barn doors: Hinged metal plates on the lamp incasement permitting control of light falling on the set.

Key light: A major light source illuminating the subject generally from above and in front, usually with the strongest foot-candle illumination of any lighting source.

Fill light: A soft light filling deep contrasting shadows caused by key light, about 1/2 to 1/3 the intensity of the key.

Kicker: Off-center illumination of the background or set, generally positioned low.

Scoop: A flood light illuminating broad areas at close range.

Set light: Auxiliary lighting of background or set.

Lip Sync

Lip sync refers to the sound track of spoken words synchronized to lip movement and actions being filmed. Filming segments without incorporating sound during production but having it dubbed in later is called "sound-over."

Zoom Lens

A continuously adjustable focal length lens from wide angle to telephoto is called a "zoom" lens.

Directions

Dissolve: To fade in or out of a picture gradually is to "dissolve."

Take: A "take," also a "switch," is to change abruptly from one source of input to another.

Dub: "Dub" is to copy a tape or other recording.

Editing: "Editing" a tape is making selections of required portions of the production and fitting them together. In film, this is

done by cutting and splicing. With tape the process is an electronic dubbing of the segments in desired sequence.

Pan: To "pan" is to pivot the camera across the scene, producing a panoramic effect.

Tilt: Moving the camera vertically is to "tilt."

Pedestal: Raising or lowering the basic height of the camera is to "pedestal up" or "pedestal down."

Truck: To "truck" is to move the camera ensemble to the right or left, maintaining distance from the subject.

Dolly: "Dollying" is to move the camera forward ("in") or backward ("out") with respect to the subject.

Talent: "Talent" is the term for the person or persons appearing before the camera.

Blocking: "Blocking" of the set refers to positioning and arrangement on the set of properties, talent, camera, and equipment.

PROGRAM UTILIZATION

Planning is necessary if instructional television programs are to have the desired effect. To aid the classroom teacher in the integration of an ITV series into the regular routine of classroom instruction, guides are prepared to accompany most series. The guide will explain each segment, its goals, its educational implications and applications. Activities to accompany each segment are also suggested.

There are four considerations concerning ITV in the classroom: (1) long range planning; (2) preparation of the students for viewing; (3) the telelesson; (4) post lesson activities and program evaluation. Each of these is illustrated in a manual which accompanies the series.

Long range goals of the course should be examined. A decision should be made regarding which segments of the TV series correspond most directly to the subject being taught. Sequence of the curriculum units may need to be adjusted to coordinate with the segments of the TV series. Additional details found in the ITV guides about the series and each segment will help to determine lesson content and supplementary resource materials needed for reinforcement. Every segment need not be viewed just because it is there. It may not be appropriate. However, a consistent pattern of viewing is recommended in order to maintain continuity.

In preparing students for viewing, the teacher should not make television a special attraction, but integrate it smoothly into the classroom as casually as possible. The receiver, the VTR, even the camera should become a total part of the classroom environment, no more uncommon than the desks at which the students sit. A preview of the lesson with the students, relating to special things they may observe, can present the main ideas without explaining the whole show.

Students should be permanently arranged for acceptable viewing. Although it is important that students view the receiver without a great deal of movement, the seating arrangement should not detract or interfere with the normal classroom activity. Additional information on seating for classroom viewing is given on pages 18-21.

In viewing the telelesson, the class should be settled and prepared to view the program. The program should not interrupt another activity abruptly, but be smoothly integrated into the daily schedule. Active response during the broadcast should be encouraged. Interruptions from outside the classroom should be held to a minimum. Perhaps placing a

DO
NOT DISTURB
TV
IN PROGRESS

"DO NOT DISTURB" sign on the outside door may help. The teacher should remain present during all telecasts, observing and recording student reaction during the lesson in order to facilitate follow-up activities.

By the time that students are in the 4th or 5th grade, some techniques of note-taking can be introduced. Taking notes will not only aid in recall of the telelesson but will speed the student's written skills and not appreciably impare handwriting quality. Learning to jot notes, analyze the main points, and synthesize topics are extremely valuable as the student progresses. Applying these techniques in other classroom activities may increase the effectiveness and efficiency of the total learning process.

Immediately following the telelesson, time should be allowed for discussion and clarification of the broadcast. Students need a few minutes to review and correct their notes and to insert additional information to the outlines they have made. Additional assignments and projects should be developed, with emphasis on student initiative. Projects should not be extremely structured but should allow students to be creative, meeting their own interests and needs. Individualism of projects and small committee assignments prove very effective in maintaining the enthusiasm. Sharing of related experiences proves invaluable in the totality of communication practices and is easily implemented following the introduction through the video media.

Evaluation of the lesson in terms of its value to the students should be a continuous process, not only by the teacher but by the students as well.

The program producer, his staff, and the numerous people involved in bringing the telecast to the classroom benefit from the constructive criticism of the viewer. Comments pointing to good, as well as bad, aspects and techniques illustrated in the presentation are important. Suggestions to aid other teachers in the utilization of the programming so that all might share the experiences will help to make television the useful and effective medium it is intended to be.

Written comments are not only welcomed, but encouraged by the broadcast facilities and by the Office of Educational Television in the Idaho Department of Education at the following address:

Consultant
Educational Television
State Department of Education
Len B. Jordan Office Building
Boise, Idaho 83720

FOLLOW-UP ACTIVITIES

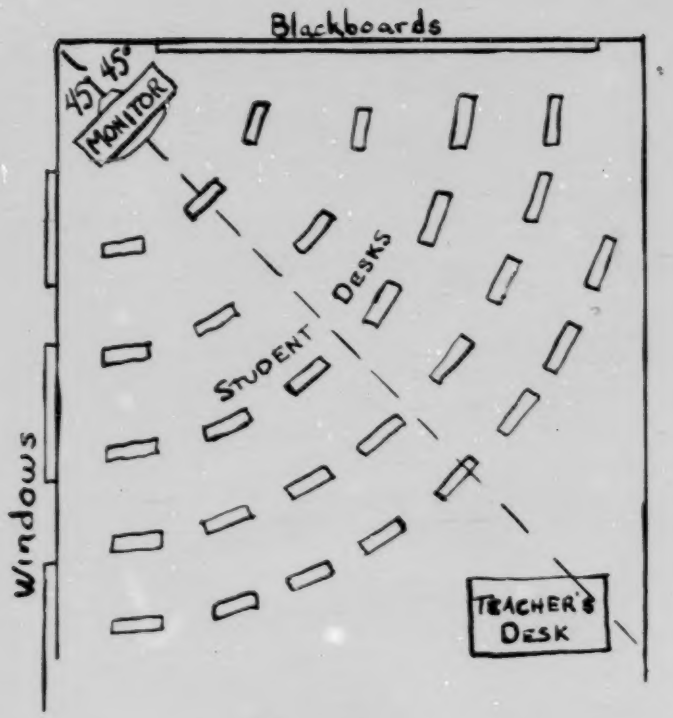
The follow-up activity in the classroom is perhaps more vital to the successful utilization of ETV as a supplemental aid to instruction than is the program itself. The telelesson is the creative stimulus to start the learning process. If the effect is to be realized, reinforcement and a continuation must be made in the classroom. The following are samples of useful classroom activities which may aid the teacher:

1. DRAMATIZATIONS AND ORAL PRESENTATIONS: Role playing, skits, plays, choral reading, pantomime, shadow plays, charades, puppets, games.
2. IDEA SHARING: Questions and answers, small group discussions, "buzz" sessions, panel discussions, quiz panels, debates, symposiums, clubs and special interest groups, oral reports.

3. PROJECTS AND DEMONSTRATIONS: Experiments, continuing project experiments, student demonstrations, problem solving activities, fairs and exhibits of projects, models, maps, murals, aquariums, terrariums, pets, insect colonies, plants, cultures.
4. RELATED READING: Independent study, reports, meaningful assignments, reference books, textbooks, library books, magazines, encyclopedias, newspapers.
5. ASSOCIATED ART, DRAMATIC AND CREATIVE PRODUCTIONS: Dioramas, mockups, collages, drawings and paintings, models; story-writing, poetry; bulletin boards, block printing, mosaics, sculpturing, mobiles; instrumental presentations, music appreciation, folk dancing, choirs, assembly programs.
6. OTHER EDUCATIONAL MEDIA: Film projector, filmstrip projector, filmloops, slides; educational games, overhead transparencies, opaque projection; independent learning machines; audio and video tape recorders, disc record players; maps, charts, models, globes; educational boards--bulletin, flannel, magnetic.
7. OTHER RESOURCES: Outside school and community personnel, other pupils, industry, field trips, related assembly programs; other print and non-print resources--free films, posters, bulletins.

SEATING YOUR STUDENTS

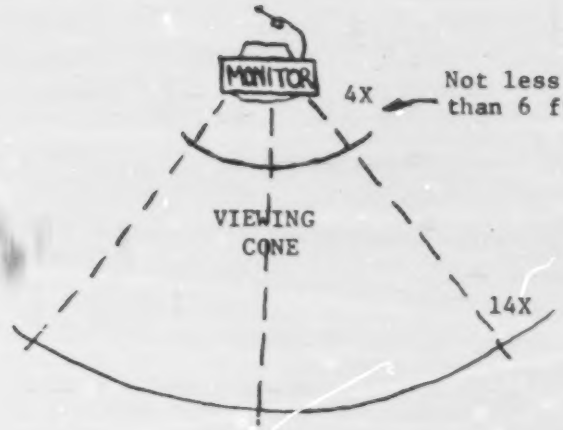
The classroom never has an optimum seating arrangement of the students for TV viewing, but generally speaking, it is better than home viewing habits. To aid the classroom teacher, certain suggestions may be useful.


Blackboards
45°
45°
MONITOR
STUDENT DESKS
Windows
TEACHER'S DESK

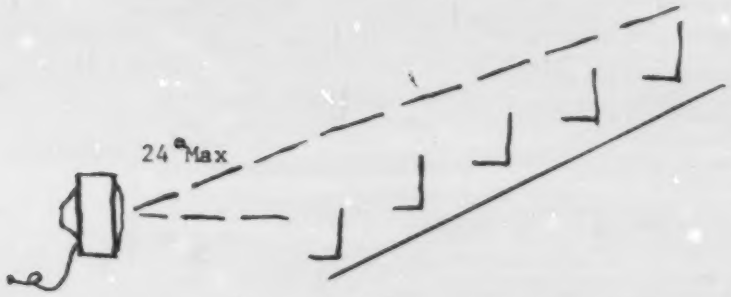
The optimum viewing distance is 8 feet to 15 feet depending upon the size of screen, generally about six times the image width. Students with uncorrected vision and hearing problems should be seated in this area of the room. Students who have problems in seeing clearly may be observed as inattentive, squinting, moving forward in their seats or complaining of eye fatigue when watching the television broadcast. At home, they probably sit or lie extremely close to the set. Referral of a suspected vision problem to the school nurse may prevent further loss and improve academic work.

Adequate viewing area, minimum to maximum distances, also depends upon the size of the receiver used. Minimum distance for average monitors is about four times the image width. If the resolution is high, such as in very small receiving sets, closer viewing, up to twice the width, is possible. Maximum distances are determined by the visibility of the image, depending on the contrast and illumination of the set. Probably 12 to 14 times the image width would not be an excessive distance. With a color transmission the distance may be enlarged to perhaps 18 times.

Optimum horizontal arrangement is within an angle of 15° to either side of an axis perpendicular to the television screen. This is much more critical in the viewing of slides and films projected onto a screen. TV allows the acceptable viewing arrangement to increase the angle to 45° right and left of the projected axis line before paralax destroys the image. Thus, a video set placed diagonally at one corner of the room may serve the entire room.


MONITOR
4X
Not less
than 6 ft.
VIEWING
CONE
14X

30°
Max


24°Max

If the TV set is raised above eye level to avoid an obstructed view, no student should be seated so his inclined view is more than 30°. The optimum is to be viewing the set slightly below normal eye level. If the gallery of viewers is raised, no one should be viewing downward at more than 24°. The major constraints are to eliminate vertibrate strain in the neck. Seats which swivel to a desired viewing angle with head rests would be the ideal.

The position of the seats would be directed toward the screen to avoid eye and neck strain. This would probably require seating in a light elliptical pattern as in a movie house.

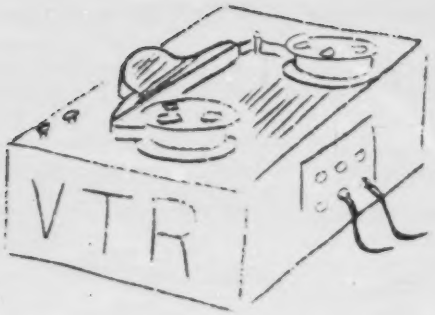
The lighting of the room is also critical. One should attempt to avoid glare on the glass from bright light sources, but the room SHOULD NOT BE DARKENED. If the TV set is working properly, normal inside lighting should not destroy a good image on the screen. Dimmed or darkened rooms can affect the retina of the eye, particularly when viewing monochromatic images.

An outline of guidelines for classroom viewing is given in Appendix A-1, page 27.

PLANNING FOR EQUIPMENT

Many districts are beginning to plan for the purchase of video equipment. The funding may be coming from Title I, ESEA; Title III, ESEA: State allocations; from within the district; or from gifts and donations. Regardless of the source of funding, a wise purchase is essential to the value you receive for your dollar.

VTR and TAPE: When buying a video tape recorder (VTR), there are several things which should be considered: The compatibility of the


VTR

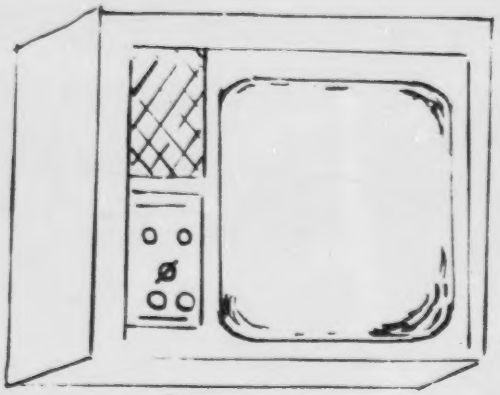
machines is very important if there is to be an exchange of tapes. The new ½" format is campatible throughout the indsutry (reel to reel, cassette, or cartridge) under an international standard speed which was introduced in 1971. The tapes are usable if rewound on an appropriate reel, cassette, or cartridge.

Some very attractive offers in 1" and old style ½" machines may be available, if use is contained within a building or a program which does not plan the exchange of tapes. Also, many materials are still available in the Ampex 1" format, so it would not be in the best interests of the district to trade off these machines.

Another consideration to remember when selecting the VTR to be used is that the cost of tapes can vary greatly from one brand to another in the ½" format, and between 1" and ½" formats.

Is the machine to be used in one building, moving it about the building on an easy rolling cart? Is the recording use going to take place in a single "studio" or in a large number of different locations? If the use is somewhat restricted, a desk model recorder should be considered. However, if the need is for quick mobility, then the portable unit is correct. Most of the manufacturers are producing portable units with extremely good resolution and durability.

Some of the new portable units have such features as color capability, self-cleaning heads, cartridge or cassette loaded tapes, built-in RF adapters, extended play capabilities, long-life batteries, built-in battery chargers, separate audio-dub, stop action and slow motion, and electronic editing.



13

KNOW THE PROPOSED USE OF THE EQUIPMENT AND MAKE THE APPROPRIATE SELECTION TO MEET SPECIFIC NEEDS.

CAMERA: It is essential that a zoom lens be included with the camera purchase. The lens may cost as much or more than the camera, but the versatility of a zoom is necessary in any production for instructional purposes.

Some of the lighter weight cameras of the portable ensembles are built to be hand held. Even so, a monopod or tripod may be very useful in a studio production. With the heavier cameras, a tripod with dolly is essential for any reasonable kind of classroom use. For athletics, a stationary location at mid-field or mid-court should be maintained.

MONITOR-RECEIVER: The brand of monitor or receiver purchased for use in the classroom is immaterial. Today, with the advancements in technology and the competitive market that is present, receivers are quality constructed throughout the industry. Most receivers can be modified to accept the VTR of your choice very quickly and inexpensively. With an RF adapter, the VTR can be operated through any receiver by connecting it to the antennae terminals, without modification.

The Idaho ETV Network is a full color network, and color receivers are necessary to gain the full benefit of instructional materials presented in color. However, some of the ITV tapes which are for lease from the major distributors are only available in monochrome. Not all of the programming will be in color.

Television is an essential tool for improvement of instruction in Idaho. Planning for the equipment is needed in order to take advantage of this supplementary aid to classroom instruction.

ETV/ITV GUIDE #I

APPENDICES

APPENDIX A-1

GUIDELINES FOR SEAT PLACEMENT IN CLASSROOM TV VIEWING

1. Optimum viewing distance: six times the image width, i.e., 23" screen, about 12 feet.

2. Minimum viewing distance: For average monitors: four times the image width. For high-resolution monitors: twice the width of the image. For color monitors: at least six feet, regardless of image width, although new monitors no longer emit low grade X-ray emission.

3. Maximum viewing distance: whatever is permitted by the visibility of the image; probably 12 to 14 times the image width, with color up to 18 times. Students with vision problems should be seated closer. Ask the students if they can see adequately. Students who have problems in vision which have not been corrected by glasses should be referred to the school nurse. Many visual problems can first be observed in TV viewing habits.

4. Optimum horizontal seat placement: within an angle of 15° to either side of an axis perpendicular to the television. This is more critical in the viewing of films projected onto a screen.

5. Acceptable horizontal seat placement: within an angle of an additional 30° to each side, i.e., a total angle of 45° from the perpendicular axis on each side. The angle for TV viewing may be wider than for adequate viewing of films projected onto a screen because of the refractory properties of the screen. Seats should be turned to face the television directly, and the television set should be tilted toward the viewing audience.

6. Optimum vertical seat placement: at floor level, with the angle of the television screen depressed 5° from parallel with the floor. (Generally, in the classroom, the monitor is raised about 6' - 8' above the floor to eliminate obstruction of viewing by students in the back.)

7. Acceptable vertical seat placement: between angles at which the viewer must look up no more than 30°, nor down no more than 24°.

8. Glare: eliminate all glare from extreme light sources (outside windows, direct reflection of inside lighting, etc.), but generally the viewer will see better if the illumination of the room is normal, neither dimmed nor darkened.

9. For individual viewing in carrels: the monitor should be at least 13" away from the eyes; 20" is better (depending on the size of monitor, of course). Monitors in a carrel should not exceed 8" to 10".

APPENDIX B-1

10 MOST FREQUENTLY ASKED QUESTIONS ABOUT INSTRUCTIONAL TELEVISION

1. Q. Who plans the programs?

   A. Committees of educators representing the schools and broadcast facilities plan or select programs from national sources. These programs are supplemented with Teacher's Guides that are necessary for the proper use of ITV resources.

2. Q. What are the sources of the programming?

   A. The sources of programming are varied: ITV programs are produced by local school districts, colleges, ETV broadcast stations, and commercial sources. The programs are then distributed from major libraries of ETV-ITV resource materials. There are four or five such distribution centers in the United States.

3. Q. Why aren't more program series produced here in Idaho?

   A. Funds have not been allocated for such local productions. The system is new and plans for future production are being made, but production is expensive and the long range feasibility and justification must be established in order to obtain the necessary funding.

4. Q. Does classroom television really work?

   A. Yes, television as a teaching tool is the most widely researched medium available to the teacher. Research clearly demonstrates that television can make a significant contribution to learning and motivation, if properly utilized by the classroom teacher.

5. Q. Does classroom television replace the teacher?

   A. No, television is a means of communication and cannot replace the classroom teacher. The resources communicated by television must be properly used by the classroom teacher. This requires thorough planning, preparation, and evaluation by the classroom teacher. Programming is a supplementary aid of resources not available in the classroom.

6. Q. Does the teacher have to use all of the available television programs?

   A. No! The choice to use or not to use should be an individual one. The classroom teacher should select those ITV resources which she determines are most valuable for her students. She may select one or more series and may elect to use the whole series or specific lessons from a particular series. However, the teacher will find that the continuity of regular use is much more effective from the standpoint of student acceptance than occasional use.

7. Q. How will the program segments fit the classroom activities which are structured around the textbook?

   A. First of all, one should say traditionally structured around the textbook. The innovative teacher allows the textbook to be integrated into the program. Most television lessons are enrichment in nature and are totally independent of any specific textbook, but developed paralleling the content of many major textbooks. Teacher Guides will help the teacher integrate the resource into the program.

8. Q. How much time should be devoted to instructional television?

   A. Television should not take up a major portion of the pupils' day. It is designed as a supplement to the classroom activities. It is considered a specialized learning experience and an aid to the classroom instruction. The length of the segments vary with the series. Generally speaking, lessons are from 10 to 15 minutes on the primary level, ranging to 20 or 30 minute lessons on the secondary level. Program segments for a particular discipline, at a particular grade level, are generally limited to one per week, rebroadcast two or three times during the week for better integration into the classroom programs.

9. Q. Why is the majority of the programming aimed at the elementary level? Why not more for the secondary?

   A. The primary answer to this question is found in the modular scheduling found at the secondary level. It is difficult to coordinate the scheduling problems (a specific broadcast time) to make it available to specific classes held on a 40-50 minute basis. Multiple sectioning also possesses scheduling problems. Classroom tapes of programs aired earlier could solve this problem, but in the meantime many more materials have been produced and are available for the elementary school. At the secondary level there is another problem. The content of courses offered in one high school may vary a great deal more than subjects in a grade school. The coordination of supplementary content is much more extensive and difficult.

10. Q. What is the recommended size of a class for television utilization?

    A. This can vary a good deal with the size of the monitor being used, the size and shape of the room, the arrangement of the seats of the students, and many other factors. Generally, a class should utilize the programming as an integral part of the curriculum in their own classroom without too much special arrangement. Each student should be able to view the receiver easily and hear the audio reasonably well. Too large a group may cause problems.

APPENDIX C-1

PERSONAL CHECK LIST

For Utilization of Classroom Television

Long Range Planning:

1. Check the Table of Contents of your guide.
2. Decide which segments of telelessons correspond to the subject content of your course. You may need to adjust the sequence of your units.
3. Consult the guide for additional details about the segments: individual lesson content, supplementary resource materials and other suggestions.

Preparation for Viewing:

1. Review the lesson content and related viewing activities as outlined in the guide.
2. Present to the students the main ideas which will be developed in the television lesson and review the preceding lessons.
3. Arrange the room and adjust the television set to guarantee optimum listening and viewing. Check for glare on the screen.
4. Provide necessary materials and space for participating activities during the lesson, as called for in the guide.
5. Introduce the television lesson.

Viewing the Telelesson:

1. View the telelesson sequentially and systematically.
2. Allow time for your class to get settled before the broadcast begins.
3. Establish and maintain rapport with the local broadcasters through your own and your students' active response and participation.
4. Set a good example for effective listening and viewing by students.
5. Observe and record your students' reactions during the lesson to facilitate follow-up activities.

Follow-up and Evaluation:

1. Provide opportunity for clarification, discussion, understanding, sharing and relating the television lesson to your classroom experiences.
2. Evaluate the lesson in terms of its value to your students.

ETV/ITV GUIDE #II

EQUIPMENT UTILIZATION GUIDE

OLD CHINESE MOTTO:
I hear and I forget
I see and I remember
I do and I understand

IDAHO STATE DEPARTMENT OF EDUCATION

Boise, Idaho

D. F. Engelking
State Superintendent
of Public Instruction

Elmer E. Hunt, Jr.
Educational Television
Section
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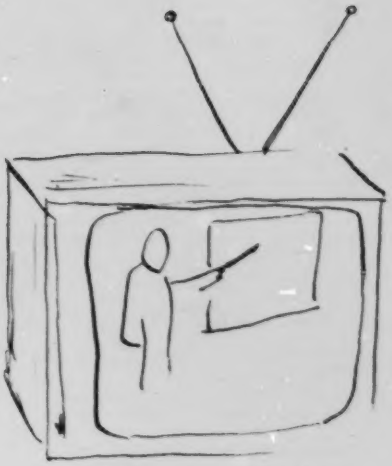
READY ON CAMERA - TAKE ONE

What is it like to go before the camera and become the talent presenting the lesson from behind the TV tube? A teacher may assume this role for material he wishes to prepare for his own class or he may be asked to perform for the district in a locally produced series. The aggressive, dynamic teacher in the classroom with creative ideas may find that this is a totally new and wholly different operation. There are no student responses to stimulate the in-depth probe of a subject. Skillfully phrased rhetorical questions are lost in space. Illustrations on the available blackboard do not fill the need in the visual aid department. Planning, or the lack of it, is much more evident as a person stands totally exposed before the single big eye of the camera. Every action and expression is magnified to the audience. What is said, and how it is said, is the only power to hold the attention of the audience. Frightening? It shouldn't be and need not be.

The problems that confront the talent as he takes his place before the camera may help to point up the advantages of teaching via TV. Strong identification comes through the intimacy created by the magnification and focus on the concepts and the individual. Greater pre-planning and preparation must be made to have proper visual aids immediately available. Questions must be anticipated and answered at appropriate times without a loss in the continuity of the presenation. Sequencing of the material makes a logical, perhaps chronological, approach to the subject matter and thus more meaningful to the learner. Television is both realistic and emotional. It brings together the cognitive and affective domain. Content is condensed because of the greater planning and lesser disrupting influences.

LEARNING TEAM



Studio Teacher

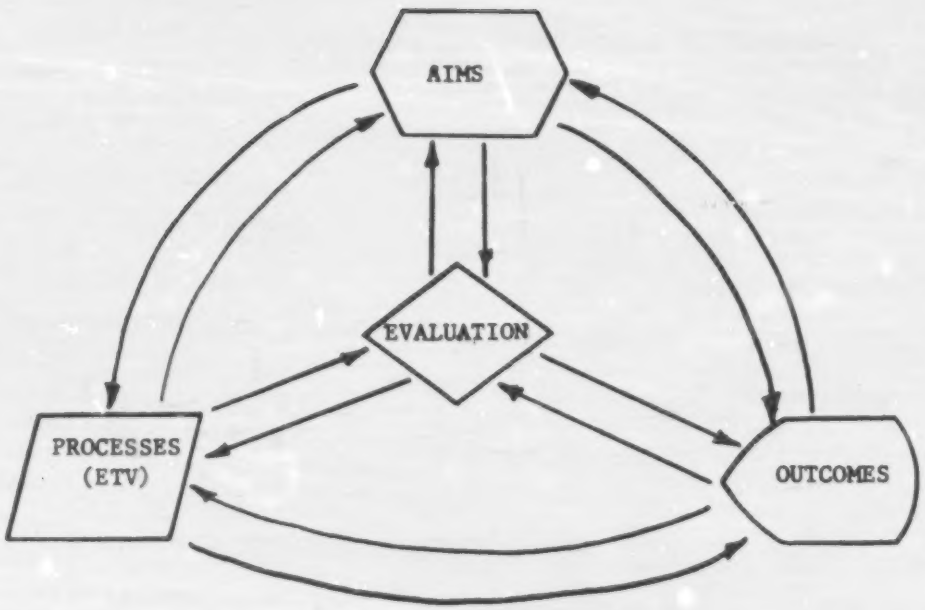
Classroom Teacher

Student

The creation of an effective teaching tool via the television screen is the result of planning, preparation, and above all, imagination. The teleteacher must have objectives well in mind, understanding not only the immediate emphasis of the lesson, but having longer range goals. He must also realize the differences inherent in the execution of his presentation in this media from the style of presentation most effective in previous classroom experience. This is a visual media and the teacher must think visually. The "Big Talking Face" is taboo. There must be movement, change of pace, and an abundance of visual displays to hold the interest and attention of the projected audience.

A large variety of audio-visual displays may be incorporated in the television presentation to reduce the total burden of continuous activity for 30 minutes or longer. Imagine how segments taken from video tape, film clips, speeches, interviews, photographs, animation, 35mm slides, sound effects, music narrative demonstrations, charts, and diagrams might be utilized by other teachers to activate and enliven the lesson, or perhaps to constitute its entirety. All integration of other media into the lesson must be smooth and pre-planned to achieve the effect desired. Evaluation and revision is also an important aspect of the finished product.

The teleteacher is a member of a team. In the classroom, it is the sole responsibility of the teacher to develop the content, within certain guidelines, in the manner and form most appropriate. In the new media, a teleteacher must rely on many others for the technical aspects of the production. The expertise off camera must be considered part of the team and will complement the final product. Cooperative organization, planning, and execution will culminate in the best possible results.



CONTINUOUS PLANNING MODEL

THE TEACHING TOOL

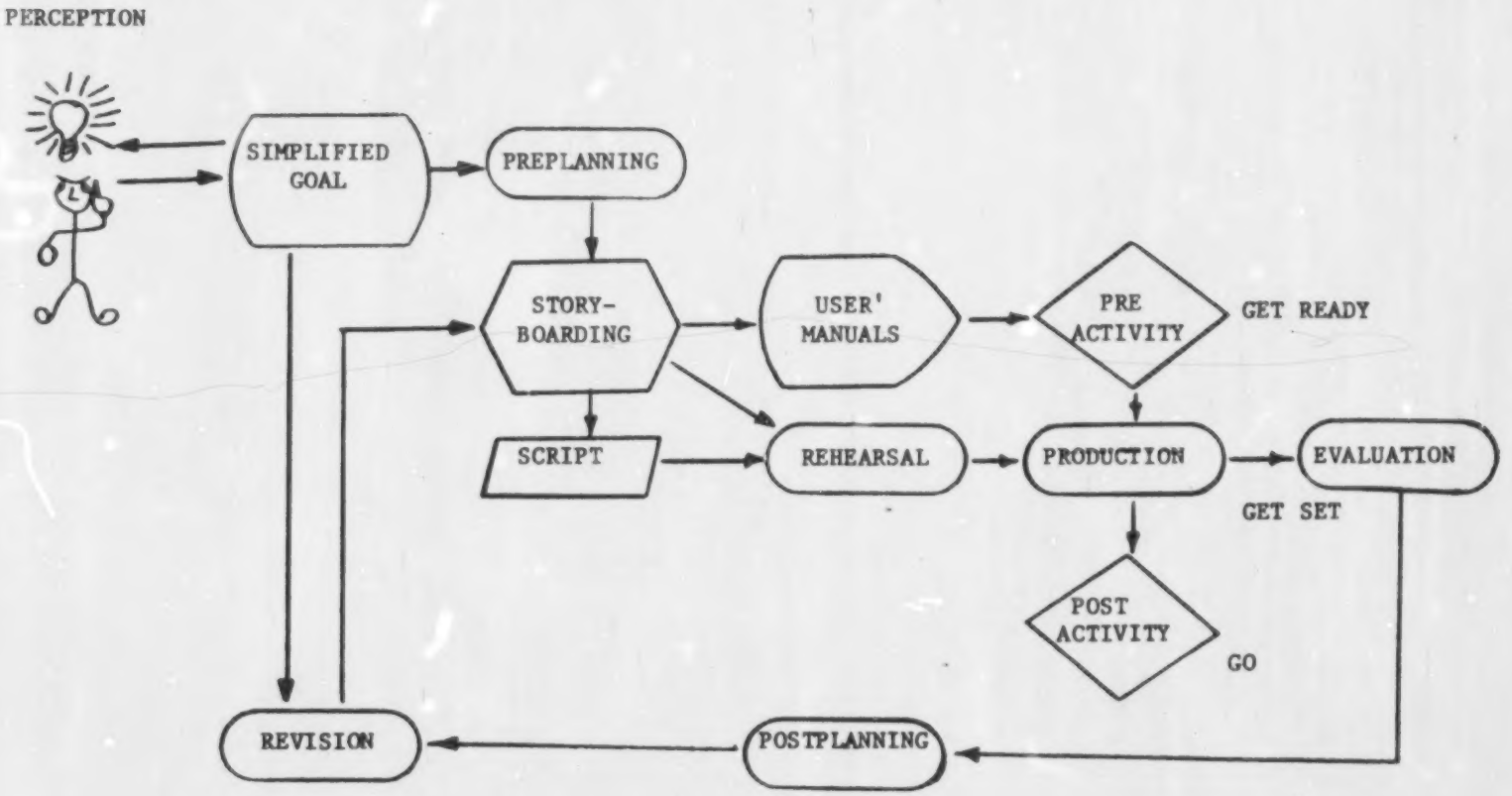
Television is a tool to help do a better job of teaching. When driving a nail, a hammer is a better tool than a wrench. Both may do the job eventually, but using the proper tool for the job makes for greater efficiency and fewer skinned knuckles. A superior workman knows the tools to use for a particular job and how to use each one. The tools do not do the job. They help him do it better and more easily.

Man develops many things that extend his own powers. With his hand a man can pull a radish; with a crane he can uproot a large tree. The function of tools and machines, whether material or social, is to serve human purposes. ETV enables the classroom teacher, who may be instructing one to thirty, perhaps more, students collectively, to project his experience and preparation to several classrooms, and many times as many students. Moreover, the students feel a strong direct identification with the teacher behind the screen, as though it were personalized instruction.

The total teaching process, of which ETV is now a part, may be illustrated by a simple schematic diagram, the continuous planning model.

The first step in teaching, as in learning and in the planning of an experiment or any other enterprise, is to set up one or more AIMS. The second step is to develop the use of one or more PROCEDURES (ETV). The OUTCOMES (the results) can then be compared with the AIMS (what was sought). The comparison is EVALUATION. Evaluation involves the comparison of AIMS, PROCEDURES, and OUTCOMES in all their relationships. Then AIMS are reappraised, PROCEDURES improved, and more desirable OUTCOMES are developed--a continuous cycle.

ETV PRODUCTION



PLANNING

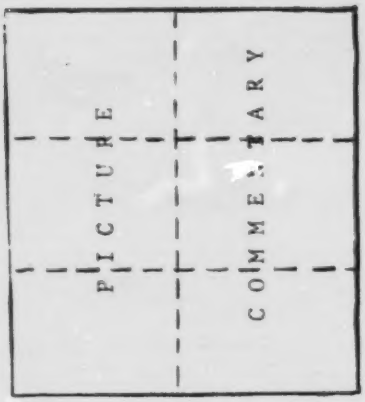
Normally, in-district program production will be on an individual basis, and on a short-range (one or two lesson) basis. If, however, the production is of a longer sequence, consistency of content and purpose become concerns. Often there is significant change in the clarity and appropriateness of aims, the structure of organization and content, the clarity of presentation, and pupil participation and attention as a series progresses.

Long-range goals and procedures to attain those goals must be planned well ahead of the first lesson. The format and content must be consistent with the previous lessons. Lesson goals must not be incongruous with the over-all objectives. The TV experience should be a creative experience which stimulates the student to greater classroom activity. It should not be stifled by the rote or mechanical activity back in the classroom.

For this reason, detailed planning must be made, not only of the TV presentation, but also of pre-lesson and post-lesson activities, long-range objectives, short-range goals, special materials and supplies, evaluation procedures, other techniques aimed at the improvement of instruction, and future presentations through the media. Complete records of all of the activities of production will be very useful as each teacher develops experiences with the facility.

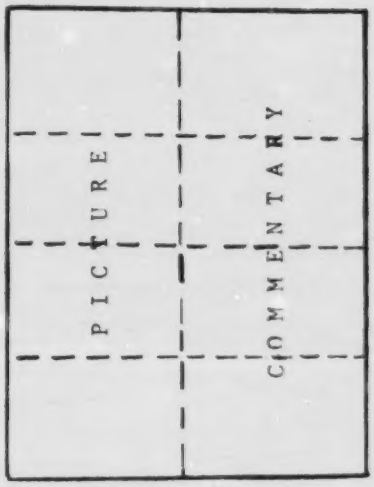
THE PRODUCTION

The production itself is the central activity for the total learning experience. When the TV lesson is complete, it will be the body of the presentation. Pre-lesson activities will essentially be the introduction,



8½ X 11

STORY BOARDING



8½ X 14

with the conclusion in the classroom with follow-up activities. Each will reinforce the other and may be a basis for the development of the other.

As has already been emphasized, planning is essential to a good product. Planning begins with an idea around which to build. Perhaps this will come from standard content in the course, the current text, or perhaps supplementary material from an outside source. From the idea, "story-boarding" the program develops.

Story-Boarding: This is a detailed outlining of the content of the production with illustrations depicting the graphic art displays, demonstrations, or movement both physical and structural. From an adequate story-boarding of the program, the script and mock-ups, models, transparencies, wall charts, or other devices may be produced to aid in the clarity and continuity of the presentation as well as in holding the interest of the audience. The story-board will also aid in the preparation of a users' manual.

To story-board, a sheet of paper, preferably 8½ x 14, is partitioned down the center and in fourths from top to bottom. An illustration is developed in the cells on the left-hand side of the page; on the right, an explanation of the illustration. Or perhaps the procedure might be reversed by a statement of theme or purpose on the right and clarification of that statement with an illustration or demonstration at the left. Imagination is an important ingredient to the successful development of this phase of the production.

Developing the Script: Some teachers would find a script, as such, rather clumsy and difficult to use. Others would have a great deal of

difficulty expressing themselves without a complete script. Regardless of the eventual use by the performer, the script is necessary. The script blocks the time and movement of the production and controls the content to some extent. It is important to keep wording and sentence structure consistent with the teacher's spoken vocabulary and rate of delivery. Sentences which are too long for adequate breath control and words which are difficult to pronounce or use freely cause problems to the performer.

One method of developing an adequate script would be to make a written transcription of an ad-lib rehearsal. This is really a form of creative dramatics. Some very profound ideas have been developed in this manner. A free rehearsal should be developed in the grammatical style of the performer so that difficult delivery will be eliminated from the beginning. After the transcription is made, simple revision to eliminate poor grammatical usage, shorten or draw out the presentation for timing, or to add humor or dramatic license is all that is needed to form the finished script.

A sample script is given in Appendix B-2, page

Delivery: The delivery before the camera should not be too practiced, for two reasons: (1) there isn't time; and (2) over-rehearsal loses a degree of the spontaneity and the enthusiasm which has been built up in creating the presentation. Experience with the television program production will make the performers and production team conscious of the aspects of timing, rate, volume, and inflection.

COMMON MISTAKES IN BEGINNING TV PRODUCTIONS

Talent Problems: Talent must direct eye contact into the camera. If more than one camera is used, he should be aware as to the camera in use and look toward the proper camera. This should not appear obvious to

the audience. To aid the talent, cues are generally given by someone on the floor behind the cameras. The talent should know where to look and follow the cues given. Obvious and abrupt changes in the presentation should be avoided. Movements should be kept easy so that the camera can follow.

The action must be kept alive. If it is a vital concern of the presentation that an intimate identification be made with the talent, eye contact with the audience must be maintained. Gestures and facial expression emphasize dialogue. Demonstration materials should be used frequently but carefully. The talent should take particular care not to place himself between the camera and the visual aid.

Camera Problems: The cameraman has the responsibility of appropriate framing of the talent in a well-balanced picture. The camera viewfinder generally shows a bit more of the scene than is shown on the TV set at home. The cameraman should avoid allowing too much or too little headroom, the distance from the talent's hairline to the top of the picture. Generally, if the eyes are centered about 2/3 up on the view finder, the headroom is adequate.

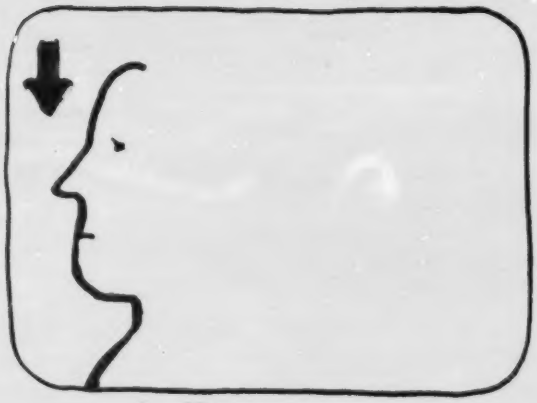
Profile shots of the talent give an added dimension to the viewer. Care should be taken to allow sufficient noseroom, the proportionate distance in front of the talent as he faces right or left, giving the subject room to move forward. This presents a more aesthetic picture to the audience.

Talent should not be centered in the frame. Overly symmetric pictures do not view well on the TV screen. Slightly off center is much more presentable to your audience. In framing a group, care must

Too Little

Too Much

HEADROOM



Too Little

NOSEROOM

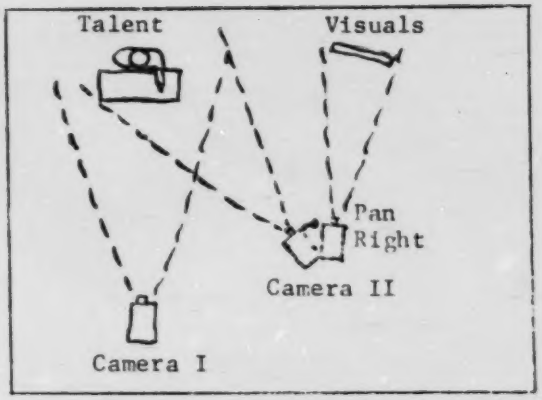
be taken to avoid cutting someone in half. Zooming in or out, panning right or left, or other camera movement will include or exclude the added member.

Movement of the camera adds motion to an otherwise stationary picture. Zooms, tilts, pans, dollying and trucking to new positions develop an added attraction for the audience. Bringing the lens in and out of focus has much the same effect of a dissolve if no switcher-fader is available for a two-camera presentation. Placing a sheet of cardboard in front of the lens would serve as a switching technique with only one camera. In this event, care must be taken to have the camera focused on the subject when the mask is removed.

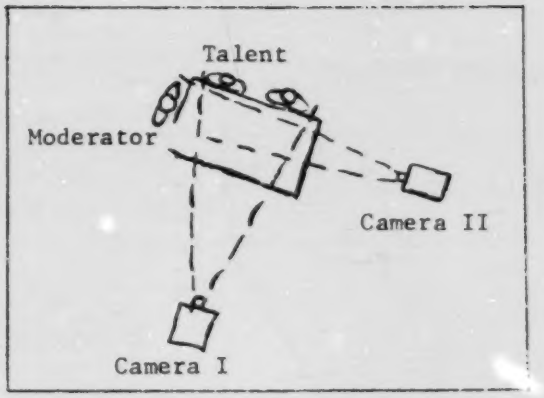
When the camera is moved, focus must be maintained. This is particularly true in dollying in and out, and panning into the spectators, if there is a studio audience.

Blocking Problems: Talent should not be placed too close to the background. This will cause a lack of definition of the picture. Depth is added when the talent is illuminated by backlighting. This effect is much more interesting to the audience. The background may be sufficiently behind the subject, in darkness to give an effect of limbo, great spaciousness which can be very effective in some presentations. It adds an authoritative atmosphere.

Cameras should be properly arranged so that charts and other visuals can be picked up easily without a great deal of movement. A distinct change in the angle viewed should be evident to the audience as the cameras are switched. Two cameras from the same location add nothing.



Single Talent
Double Camera
Pan Right for Visuals



Multiple Talent
Double Camera

Talent should be arranged for easy camera transition from one to another. They should also be situated in a staggered or unbalanced arrangement for the most pleasing group shots and easy transition to single shots.

Directing Problems: Takes, or switching from camera to camera, are used to create an effect of simultaneous happenings. This produces an effect of movement, a change of pace, transition from one speaker to another, and for the development of audience reaction to dialogue. Switching should take place only between sentences in dialogue. As the cameraman becomes proficient, he can anticipate the pause, the response of a second person, natural breaks, and position the switch at that point.

Dissolves, the superimposition of one picture with a second, fading into the second, are used to create the effect of time differential, time delay, or special effects in simultaneous happenings in different locations. This is a transposition of time and/or space.

The cameras should be positioned properly and in focus for the switch or dissolve from Camera 1 to Camera 2. Catching a cameraman off guard might be funny in the studio, but it looks terrible to the audience. It is most important that the director maintain a view of what is being taken by each camera, rather than what is being received and stored by the recorder.

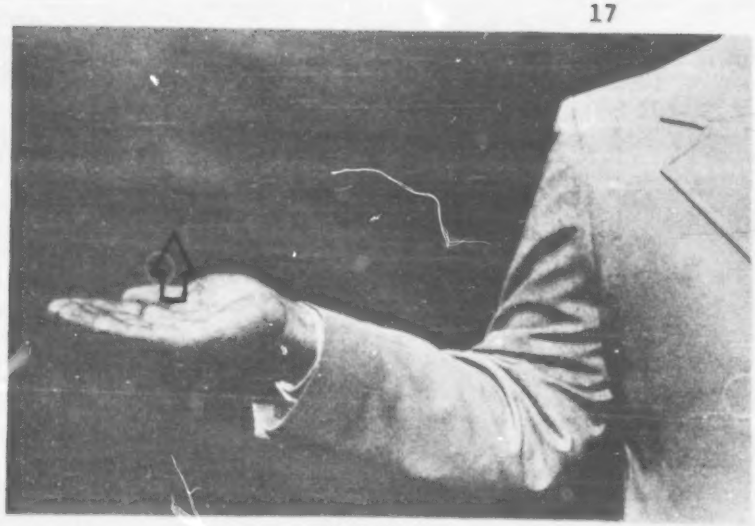
The director must gain and maintain the attention of talent, cameramen, and other technical assistants. When directing the action of several persons, he must be sure to give each one sufficient lead time with adequate cues. "Stand-by" is the cue for approaching action.

Pre-action check of equipment is necessary. Recording levels should be checked to verify if they are being maintained for both audio and video levels. A switch inadvertently left in the wrong position or a loose cable may spoil the whole taping session.

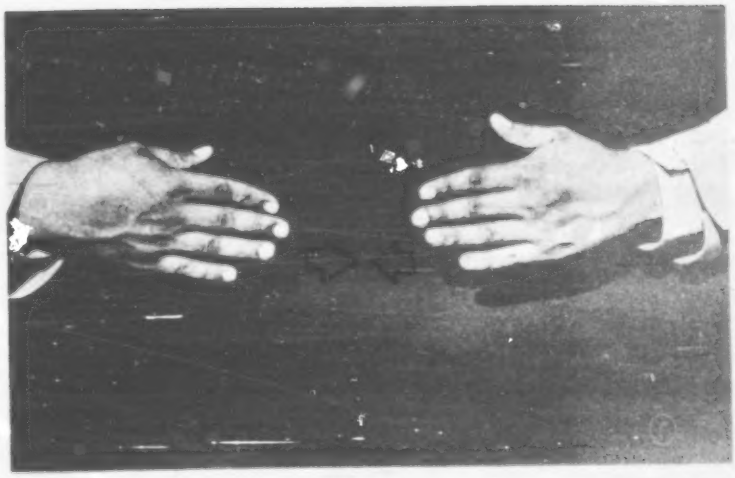
One minute/finger
(5 min.)

(30 sec.)

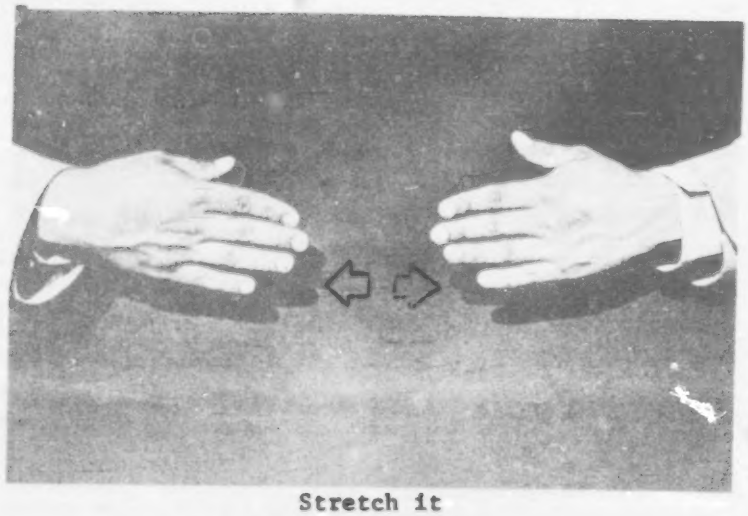
(15 sec.)



Speak up



Move Together



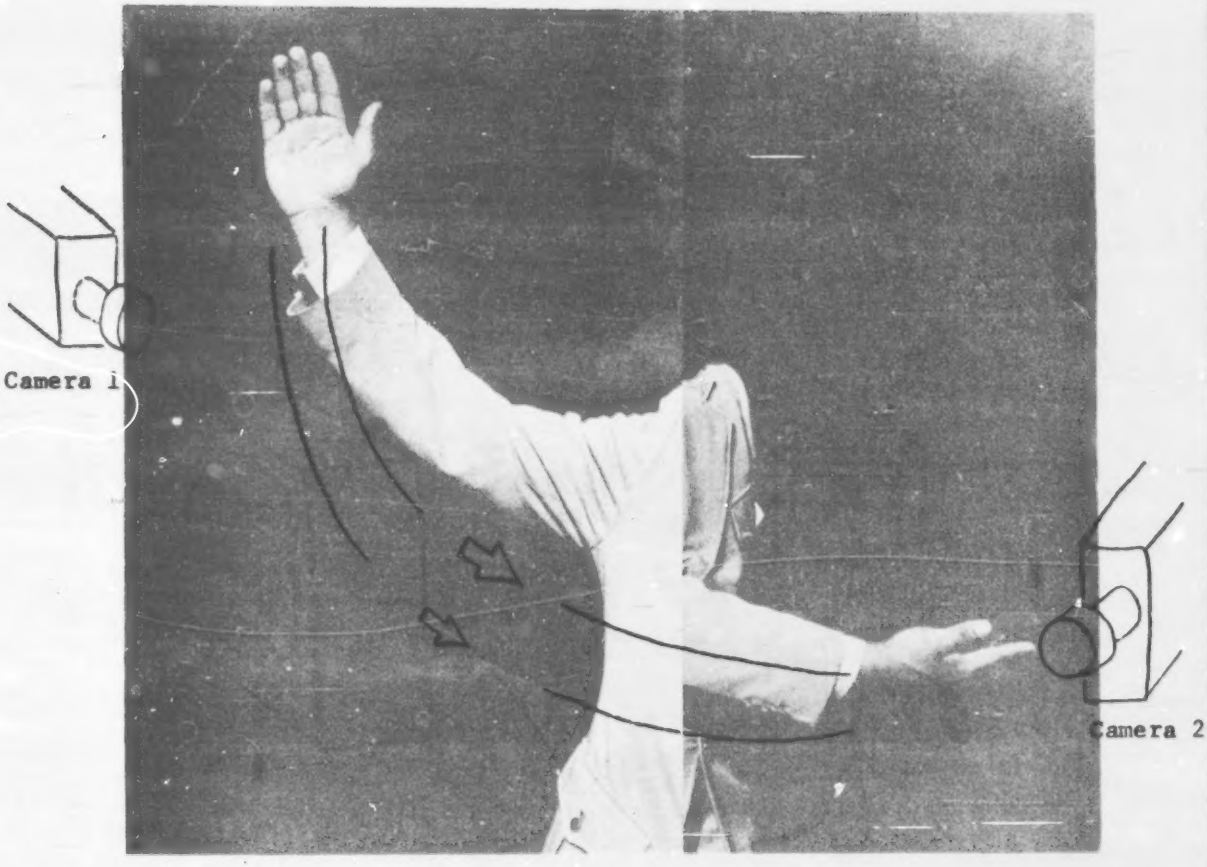
Stretch it

Standby

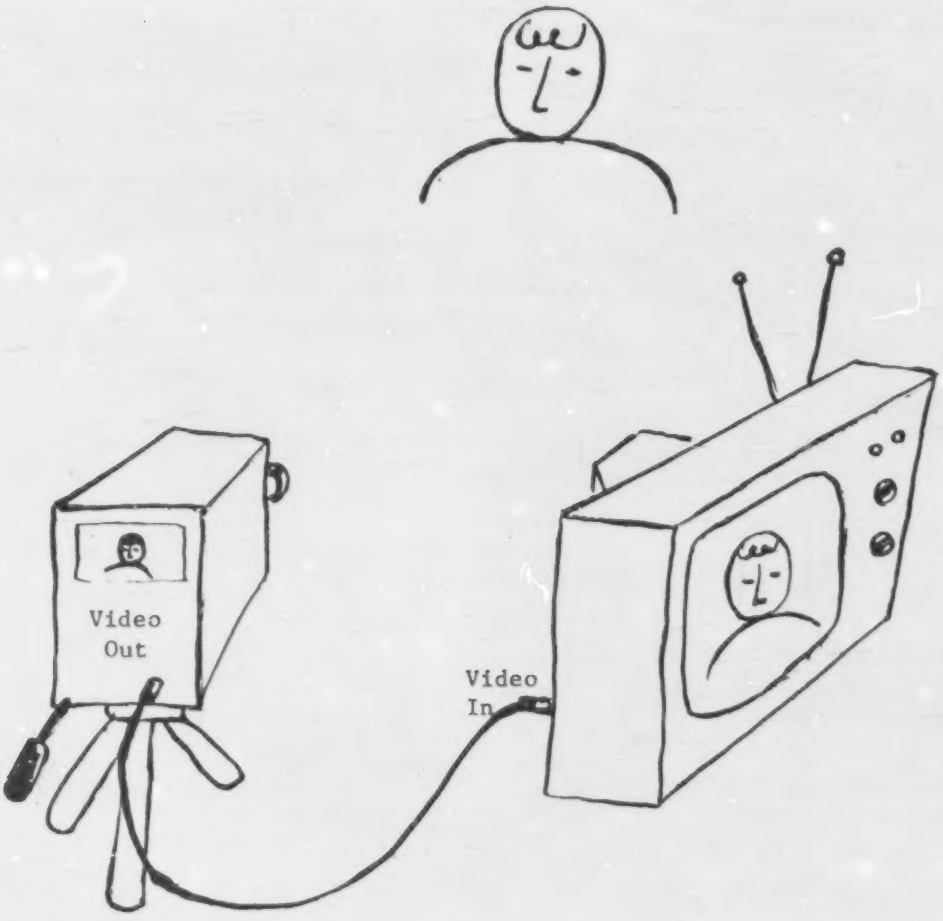
Cue to begin

Windup

Cut



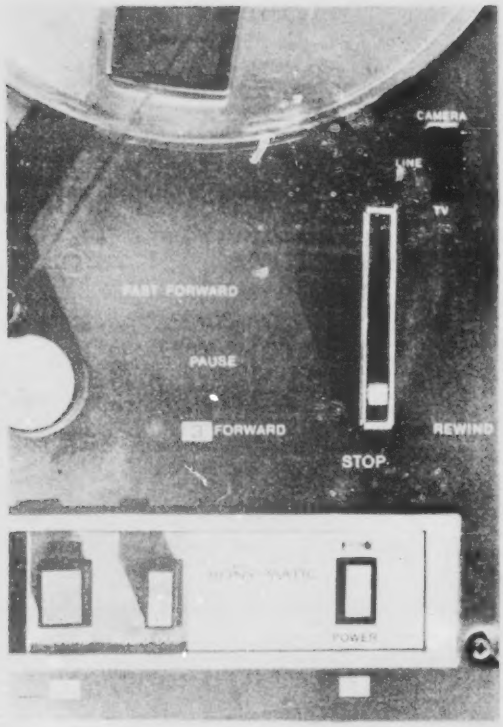
Switch: Camera 1 to Camera 2


Video
Out
Video
In

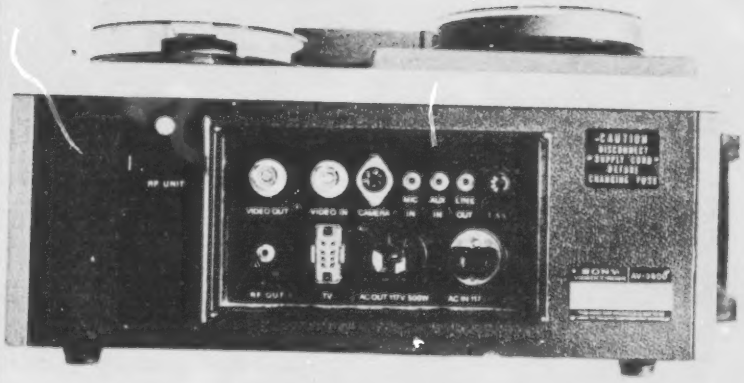
Hooking Up the Equipment: The cable connections between various pieces of gear are very easy to attach. There are two basic kinds of audio and video equipment, those acting as a source and those acting as a receiver. The source emits audio or video impulses from it to the receiver. Many pieces of AV apparatus may act in both capacities, i.e., VTR, TV Receiver, even the camera, in some instances. Determine the source. Connectors on the source should read "Video Out" or "Audio Out." On the receiver, it is "Video In" or "Audio In." The simplified rule is from OUT to IN, and the system is properly connected.

Threading tape is more of an operation, but nothing to fear. Most machines have a diagram of the tape path on the deck or cover of the machine. The rotating drum containing the video heads should be in "stand-by" or "off" position when the machine is threaded. Locking jaws which hold the tape firmly to the drum should be released, if such devices are present. The tape follows the tape path as illustrated. Caution should be taken to place the tape behind each capstan or spindle illustrated. At least ten feet of tape should be wrapped on the pickup reel and held by friction only. Each reel is rotated by hand until sufficient tape is wound onto the reel. The machine is ready to record or play.

Adhesive material must not be used to fasten the tape to the reel. Placing adhesive tape of any kind on the tape can damage the heads, the tape, or both. When this tape is being rerun and comes to the end, it will not pull the adhesive loose. It will, instead, place great tension on the video tape, stretching it and causing a great deal of force on the heads, resulting in expensive repair bills. Several feet of the tape will be damaged, at any rate.



Recorder Controls
(1) Power on-off
Audio dub
(2) Record Safety Release
Rewind-stop-forward
(3) Play-Record position
Camera or TV input switch



VTR Cable Connections
Video in-out
Audio in-out
Power AC in-out

Recording involves the releasing of a safety device while depressing the record button and turning the machine into the play position. Every recording machine has a similar device to protect against inadvertent erasure of the previously recorded content. The picture image is not sent through the VTR until the machine is placed in the record mode, and the reels are not placed in motion until the lever is positioned in the play position. The picture should be monitored before beginning the recording.

BLOCKING THE SET

The arrangement of the set is done for the ease and efficiency of the camera picking up the action. Changing location of the cameras during the recording should be made only for the special effects of the movement, not to position for charts or other visuals. The camera should be panned into position for all visual demonstrations.

The talent should be located in front of the camera, only when it is necessary. Zooms, fades, and switches from one camera angle to another can be used to create the illusion of motion and to reduce the monotony of a single stationary figure. Visual aids should be utilized frequently. If all that is to be shown is a man talking, other means than video recording should be employed.

When there are two, three, or more persons in a panel or interview, the talent should be formed in a "V" or "L" shaped arrangement. The cameras may then be blocked to single out the moderator and one or two guests to zoom in on each of the panel from an off center location without distraction of other members of the panel. The group is closer together than if they were stretched out behind a long table in a straight

row. Placing attractive properties behind, beside, or below, and in front of the talent will relax the audience.

Chairs used may also have a rather strong psychological effect on the audience. Straight-backed chairs or high-backed office furniture will create a masculine effect. Straight and rectangular furniture give a much more rigid atmosphere, more businesslike and effectually efficient. Curved and rounded furniture and curved lines in the background produce a more feminine and relaxed appearance.

A debate should have opposing panel members opposite one another, as with two rows facing one another behind waist-high tables. The moderator should be between the two groups, perhaps seated in a high back straight chair. This would denote a rather formal discussion. For a less formal atmosphere, the group would be placed in softer chairs in a semi-circle, with the moderator in the center and the opponents on either side.

Many sets such as in a sporting event or an after dinner speech cannot be blocked. Blocking the camera is the next best thing. The camera or cameras may be positioned for fullest effect with the anticipation of as little camera relocation as possible. In a sporting event, the cameras should be located high and centered on the field or floor, so that all of the activity can be viewed from the single location. Cameras should never be arranged on opposite sides of the action. Switching reverses the orientation of the audience. At a formal presentation with an audience, the first camera should be set up down front, right or left of the speaker's platform. With a second camera, a head on location may be used about halfway back in the audience. The length of the cable extensions may determine limitations on the distances which may be employed.

LIGHTING

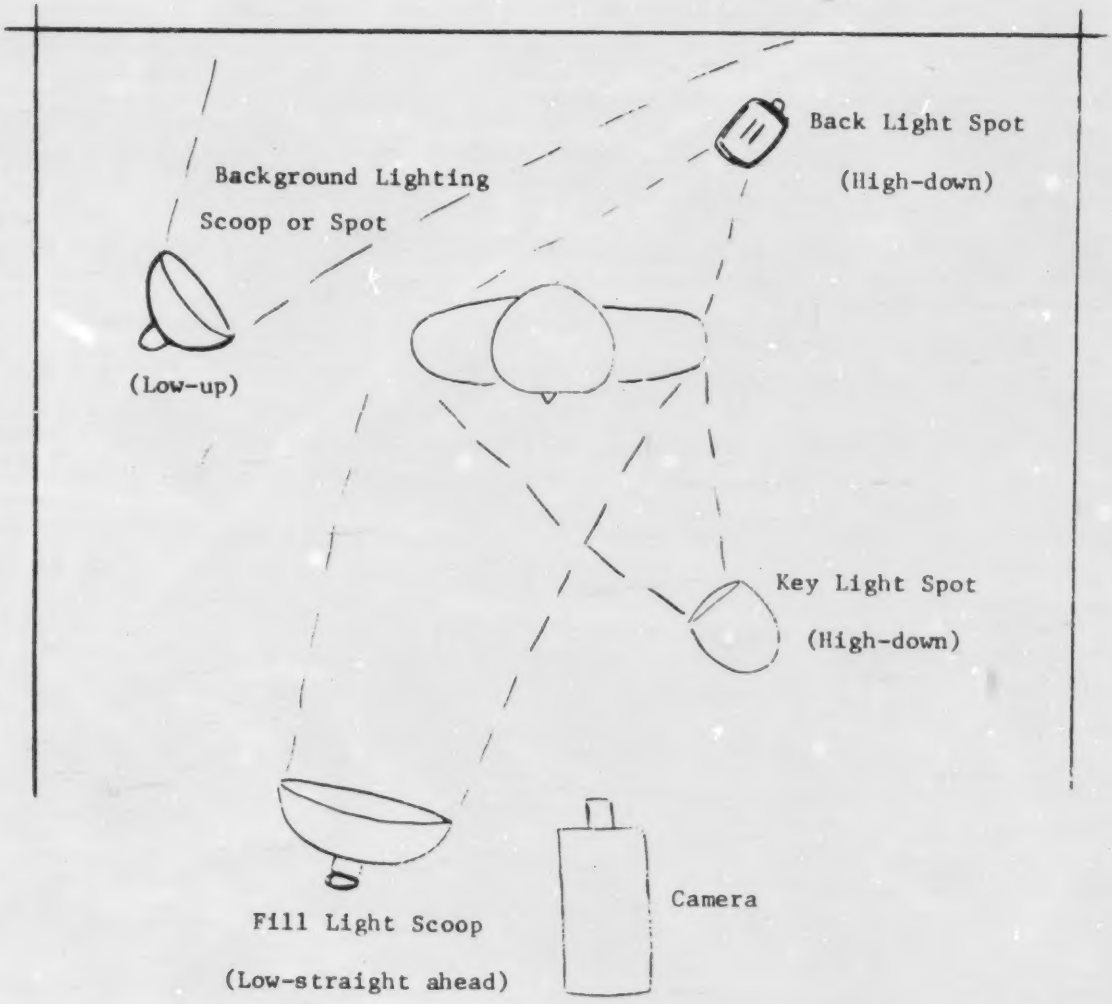
The lighting in a classroom is generally good. In most cases there is even lighting, with 50-100 candle power, which is quite adequate for most TV recording. There may be glare from outside which could affect the presentation, however. If the camera is positioned so that it focuses away from the windows or other bright sources of light, the effect of the unwanted light will be minimized. The use of highly contrasting backgrounds should also be minimized, unless auxiliary lighting can be used to lighten very dark surfaces.

The use of auxiliary lighting benefits any production. The major purposes of such lighting are to (1) eliminate deep shadows, (2) remove glare and soften contrast, (3) add dimension by silhouetting the talent, (4) produce special effects, and (5) illuminate the background.

The backlight: Backlighting is placed above and behind the talent to silhouette and add highlights to the shoulder and hair. This adds depth and distinguishes the talent from the background.

The key light: The major source of lighting should come from the key light. This is a bright source of light, generally high and in front of the subject, although it may be located elsewhere for special effect. This light adds shadows to create and define shape. More than one key light may be used.

The fill light: This light is to be 1/2 to 1/3 the intensity of the key light. This is a broad diffused source of light to fill unwanted shadows created by the key, but not to eliminate them. This source is to soften contrast on the subject. The light is generally low, about camera height, and to the opposite side as the key light. For desired lighting effect, two fill lights positioned on either side of the camera may be used.


Back Light Spot
(High-down)
Background Lighting
Scoop or Spot
(Low-up)
Key Light Spot
(High-down)
Fill Light Scoop
(Low-straight ahead)
Camera

Set and background lights: Additional lights may be added to illuminate the set and the background to gain special effects. These lights are either broad, or directed spots positioned for the best effect. Test the lighting through the camera for possible adjustment which may be required.

The intensity of the light sources may be controlled by reostats, the wattage of the bulb, or by the distance from the subject. Intensity diminishes by the square of the distance from source to subject. Thus, a light 10 feet away has 1/4 of the intensity of the same light only 5 feet distant. Reostats on lights allow control of the intensity after the lights are positioned without physically moving them. "Barn doors" may also direct or diffuse light which will in effect intensify or diminish the effect of the lighting.

Three point lighting: In most simple productions three point lighting is used--back, key, and fill lights. Four point lighting might be used by adding a light on the background. If the stage is broad, or several persons are involved, additional combinations of lights may be appropriate. Previous planning must be done for the movement of talent during the entire presentation. Lighting needs should be determined as carefully as those for the blocking and the script. Good lighting enhances the image and the effect more than dialogue.

APPLICATIONS

The application of video in the classroom is limited only by the imagination. A few of the things that might be done are listed here:

Demonstrations and illustrations: Many times demonstrations are made in the classroom which may involve physical dexterity, complicated apparatus, consumable materials, or delicate adjustments not visible to

much of the audience. Frequently, a replay of the presentation would add dimension.

While manipulating the apparatus in a demonstration, it is difficult to coordinate objective comments in order to crystalize the content. Audio can be dubbed after the video recording is made of the demonstration. When the process is taped, success in the demonstration is always shown, although it may have been necessary to repeat the process several times.

Enlargements: Via television every member of the audience gains a front row seat. Microscopic organisms might be viewed as large as the 23" screen will permit, and for every student at once. Graphics no longer need be enlarged on the art card.

Self-assessment: Everyone is a little defensive when he is criticized, but through a television replay a person may see himself and form his own critique. This is exceedingly more effective than having someone else evaluate his efforts. Dramatics, speech mannerisms, motor skills, microteaching, athletics, and personal appearance are a few of the areas to which self assessment may be applied.

Outside resources: The recording of outside persons, events, locations, and activities may provide the classroom or several classrooms with a wealth of resources available no other way. Pre-recording the sequence of activities of a planned field trip is an effective tool. Students being able to identify the things to see and for which to look would be aware of the desired outcome of the activity before leaving the classroom.

Specialized instruction: Students do not progress academically at the same rate. Television allows a media of mass communication which may act in the capacity of individualized instruction. Segments of the class

may require more and specialized instruction to achieve the same level of attainment as others in the class. These students may be separated to view or review the telelesson.

Public relations: Broadcast television of instructional programs is an obvious program for better relations within the community. How else may parents have a front row seat with their child and participate in their lessons? Classroom television may also serve the same ends. Video tapes of the classroom activities may illustrate the progress of the student in a way more visible than any other. Plays, sporting events, and other activities may also be recorded for parents unable to attend the original performance.

Mass communication: Television is the best media of today for mass communication. People from coast to coast view a national program simulcast over 500 stations. The same thing, to a lesser degree, may be applied in the school building or throughout the district. A daily video bulletin may be distributed throughout a closed circuit system or by manually transporting tape and VTR to each classroom. Resource persons may video tape a presentation to be distributed to many rather than to only a few who may gather in a single room. All of the fourth grade students in the district may observe a science demonstration presented once, and probably with better visability than had they been in the room.

PRODUCTION CREWS

When one attempts to video tape there are many details of organization and operation. A single person would find it difficult to monitor the recording and to act as talent, cameraman, and director all at once. Two

or three teachers may cooperate to produce the materials; however, it would have to be done when all are free of classroom duties. This is sometimes difficult to arrange.

The most satisfactory arrangement for everyone involved and for the best use of equipment is to organize a student crew, or crews, to handle the hardware--cameras, VTR, microphones, sets, and lighting. The teacher can then act as director and talent by blocking the production and cueing the cameramen in the sequence of shots desired.

THE TELEVISION CLUB

The development of a television club in school may also lead to student productions. The experience the students gain can prove to be extremely valuable to them. Many students gain sufficient experience to go into radio and television jobs directly from high school or work toward FCC licensing.

A television club may be formed as an extracurriculuar school activity. Members may produce programs about school activities, local news, topical interests of youth, such as records, clothes, film and TV reviews, or whatever programs they wish for their own enjoyment. A tie-in with other clubs and activities, such as athletics, the fine and performing arts, future teachers, and other extracurricular groups can produce real dividends for a large number of students. Playbacks to the entire student body can be arranged in assemblies or in the cafeteria, using monitors, a master antenna system, or a closed circuit system throughout the district.

The production of these programs can involve many club members. Students should rotate among production and program jobs. Two or even three program crews can be preparing their shows, writing, making visuals

and graphics, scripting, and rehearsing, while another program team working with the production team is actually shooting a show. In this manner, perhaps thirty members of the club can be actively engaged at one time although only one system of video hardware is being used.

The advantages and objectives of the club include:

1. There is a development of creative communications arts skills among club members and other students involved in club programs.
2. An understanding of creative teamwork through the production process is necessary for an effective product. A voluntary self-discipline to the team effort is a requisite in shooting the program. Leadership, teamwork, and individual creativity are all combined into the television production experience.
3. A CCTV or CATV system can serve as a viable channel of communications between enlightened educators, administrators, and students on many matters connected with living and learning together in the school environment.
4. The development and training of a hard core of trained and enthusiastic production team members who can effectively perform various production tasks is essential for quality productions. These same members can and will, if provided the opportunity, assume responsibility for the maintenance and simple adjustment and repair required to keep the system in operating condition.
5. Possible vocational interests and background experiences may prove useful to students in the future.

A STUDENT PRODUCTION

A news show is a particularly interesting initial project for the extra-curricular television activity or TV club. It allows a maximum number of students to participate, permits simple modular production, and does not require extensive sets or other preparation. In order to maintain image, titles, music, and sets can be reused each time the show is done. Memorization of material is not required as news reporters may read from scripts or narrate over visuals. A crawl board with script printed in large bold type used as an "idiot board" or cue sheet will eliminate hand held script and allow more eye contact. The show may also provide a useful channel of communication to students, teachers, parents, and administrators. The following step-by-step outline is suggested for organizing and carrying out such a project:

1. Organization for the show begins at an early meeting of the TV club.

THE TV CREW

Producer	1	General news commentators	1-3
Director	1	Feature news reporters, editors	2-6
Technical Director	1	Photographers	1-2
Floor Director	1	Artists	1-2
Cameramen	2	Audio technician	1
Audio Director	1	Program writer and editor	1
Visual Assistants	2		
Production Crew	9	Program Team	7-15

There can be overlap of some assignments, particularly if the club is small.

2. Next, the format of the show should be decided. It might include the following elements:

PROGRAM SCHEDULE

a.	Titles, theme music, orientation shots or visuals of school	30 sec.-1 min.
b.	General news summary (a verbal and visual report on major events)	2 min.-4 min.
c.	Features (special interest reporting as desired)	8 min.-15 min.
d.	Sports	2 min.-4 min.
e.	Faculty time	2 min.-4 min.
f.	Wrap-up	30 sec.-1 min.

The success of the show will depend on a variety of interesting and informative features. About half of the total time suggested in the above guidelines are devoted to such features. They might include:

Class or departmental reports
Girl news, fashions
Contests, beauty, brains, etc.
What's new in records
Meet your classmates
Meet your teachers
Music, dance, drama, reports
Movie and TV critic
Club activities

3. A tie-in with the school newspaper is advisable. The paper can supply news stories, writers, photographs, and often an organization of class reporters. The paper's editors may wish to serve as TV editors or reporters.

4. The secret of a good news show is to keep it interesting and fast moving. This means more action footage where possible by moving the camera to where the action is, good visuals, and not too much "just people talking." It means short, snappy reports, lively music when appropriate, and interesting people to look at and listen to.

5. A production schedule is necessary in order to produce a timely and good show. The program editor and producer should decide when they wish to shoot the show. By working backwards from this date, feature editors, photographers, artists, and writers can

plan to have their material ready beforehand. Cubbyholes or envelopes can be established for the regular features of the show and material turned in when completed for review by the editors.

6. Don't try to shoot the whole show at once. Plan the schedule in order of the program, from the opening (which can be used for all shows) to the close. This practice cuts down the number of people in the studio at one time.

7. On the production side, work can begin on sets, lighting, and camera placement before the features are ready. The opening can be done well before the show is shot, as soon as the material is ready.

8. Everyone should know his job. Jobs and responsibilities can be listed in the following manner:

Producer - Overall coordination between production and program people
Liaison to school administration on all aspects of show
Preparation of schedules
Arrangements for showing program when desired

Director - Direction of production crew, before and during taping
All aspects of production, including performances by program personnel during taping

Program Editor - Program preparation and content
Scheduling of all program materials to insure submission and editing by show time
Review of all materials to insure no violation of ethics, good taste, or school policies
Editing of general news, features, sports, and faculty time to keep show within allowable time limits

Feature
Editors - Preparation of feature materials as directed by program editor, including assignments to reporters, photographers, and artists
Delivery of finished materials when scheduled
Liaison to students, teachers, and administration concerning area of interest
Editing of materials submitted in terms of content and time

Photographers
Artists - Preparation of photographs, visuals, titles, and other art work as requested by Program Editor and feature editors
Obtain technical approval from Director as to suitability of visual before final mounting and turning in to requester

Audio
Tech - Record interviews and activities as requested by program and feature editors
Upon approval and editing by requesters, submit to Audio Director

9. Production crews can be changed from show to show to allow varied experience for as many club members as possible.

MAINTENANCE

The maintenance of equipment is extremely important to it continued effectual use. Electronic equipment has less tolerance to changes in heat, humidity, and dust than human machines do. The big difference is that people complain vocally and the gear just quietly quits working.

Equipment must be kept clean at all times. Store all electronic apparatus and software in a dust free area of the building in which it is comfortable to work. If the equipment and tapes are transported, they should be enclosed in dust free cases and allowed to become acclimatized for at least one hour in the room setting before turning on the power. Never must electronic equipment of any kind be operated in less than 55° F unless the tubes are warm from previous use. Extreme change of temperature causes tubes to blow.

CARE OF THE RECEIVER

Receivers should be used to maintain effectiveness. The picture tube stores a tremendous amount of electrical energy. Long periods of inactivity allows a discharge. The discharge-recharge cycle weakens the tube life. It is best to operate a set daily or at least weekly for a period of not less than one hour.

Other harmful treatment of the set is continual switching on and off or from channel to channel. Frequently turning the set on and off heats and cools the tubes and shortens their life. Frequent changing of channels without proper care damages the contacts on the channel selector and makes it more difficult to tune the set properly.

CARE OF THE VTR

Many of the comments concerning the receiver may also apply to the VTR. It should be clean, dry, and dust free and placed in a reasonably pleasant atmosphere, not too hot or too cold. Acclimate the machine to room temperature before using. Equipment should not sit idle for lengthy periods of time without thorough cleaning of all exposed areas, particularly the video heads and capstan rollers.

The video heads should be cleaned frequently; otherwise, the magnetic surface will attract and build up dust and iron particles and a poor picture will result. If there is a drop out (degradation of the picture quality), cleaning the heads may correct the problem. Five items are necessary for proper maintenance:

1. Iso-propyl alcohol to loosen and dissolve residue collected on rubber capstan or capstan rollers.

2. Head cleaner available at any recording store or alcohol to remove residue from all metal surfaces, particularly the video and audio recording heads. Note: Head cleaner must not be used on rubber or plastic surfaces.
3. Cleaning swabs (chamois covered tongue depressers) to apply alcohol and head cleaner and gently dry surface. Cotton buds or Q-tips may be used if care is taken to remove all cotton lint which may adhere to video heads.
4. Lint-free tissues.
5. A degausing instrument.

Before attempting to clean the VTR, be sure the power is turned OFF. Remove the head projector by pushing inward on sides and pulling upward. To clean the rotary heads, gently turn the drum to expose the head. Hold in position with one finger and use the swab to apply cleaner to the surface of the video head. Allow swab and surface to dry and repeat removing dust particles. Move cleaning tip horizontally across the head. Moving vertically across the head will damage the alignment. If the machine has two rotary heads, the process is repeated. See Appendix A-2, page 46.

CARE OF THE CAMERA

There are two main parts of a video camera (three, with the electronic viewfinder): the lens and the electronic light sensitive pickup tube. The lens should be removed when the equipment is not in use or being transported. Lens caps should be used to cover the light sensitive surface of the tube when the equipment is not in use, either for a temporary or longer period of time. Damage to the pickup tube can result in images being permanently etched into the phosphorus lining of the tube, even when the power is OFF.

The camera should never be focused directly toward a bright light source for any extended period of time. Even momentary bright flashes may cause dark spots to appear on the picture. Generally, such spots will gradually disappear as camera is used.

Additional care should be made concerning cable and cable connectors. Cables should be removed when transporting the camera. The cable connectors may be jammed and damaged if care is not taken.

Movement of the camera on the tripod or dolly must be done with care as well. The ensemble is often top heavy and an abrupt stop as the wheels hit an obstruction may cause the equipment to topple over causing expensive damage to the lens or tube.

CARE OF TAPES

Tapes are magnetically attractive to dust and a collection of dust on the tape will act as an abrasive as the tape passes across the video head. This will effect a diminished head life. Normal head life is about 600 hours.

Tapes also crystallize in an excessively warm or dry atmosphere. Tapes may flake and lose iron particles as they pass magnetically charged metal and electrical parts of the recorder. Newer tapes have at least partially solved this problem. When cleaning the recorder, degausing (or demagnetizing) the video heads and tape track will reduce the collection of magnetized particles.

VISUAL MATERIALS FOR TELEVISION

I. Special Requirements for Television

A. Format. The television format is 3 units high and 4 units wide. Whenever possible, select or place objects within this orientation.

Use proportions relating to this ratio (6:8, 9:12) when preparing graphic materials and plan photographic materials to fit this ratio. Plan for a loss of 15% marginal area on each side and keep important parts of the visual within the critical area; i.e., a card 11 x 14 inches would have a loss of 1½ inches on each side.

B. Detail and Size. One of the outstanding features of television is the use of the "close-up," being able to center attention on the object and bring it greatly magnified to the viewer. These suggestions might be helpful:

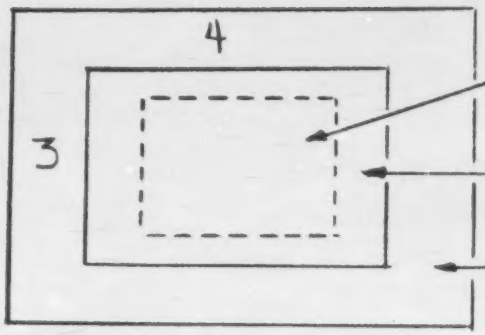
Keep materials simple, bold, and free from unnecessary detail.

Use clear-cut lettering of around 1/25 the height of the screen area Min Size

Limit outlines and other lists to 4 or 5 lines, each containing no more than 3 to 5 words per line.

C. Contrast and Colors. Colored materials will, of course, appear as shades of gray on black-and-white television. Thus, a green line on a red background may disappear because the green and red are equivalent to the same shade of gray; that is, they have the same gray value. The human eye sees about 100 different shades of gray, but a classroom television camera recognizes clearly only about 7 shades of gray.

Avoid black symbols on white background or any materials with extreme contrast. A lower contrast is preferable, such as light gray and black. The only sure way of judging colors is to check them before the television camera. Colors group themselves as shades of gray in the following manner:



Critical Area, Essential Area, or Safe Title Area is about 5/6 of the scanning area.

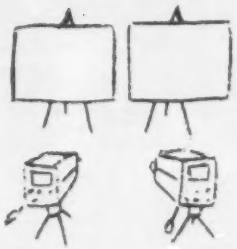
Scanning Area is the area picked up by the camera.

Bleed Area should be at least 15% on each side.

DISPLAY OF TITLES and CREDITS

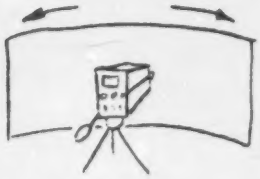
Flip Charts

Pull Cards



Alternate Cameras

Vertical Crawl Board



Horizontal Crawl Board

	Brown	Red	Light Blue	Light Gray	
BLACK	Dark Green	Medium Blue	Orange	Tan	WHITE
	Dark Blue	Medium Green		Pastels	

The following criteria should be considered before any visuals are used:

1. Have these visuals been developed as an integral part of the planning?
2. Are the visuals the most suitable ones in terms of:
   - The purpose of the program?
   - The ideas to be communicated?
   - The most effective visual medium to use?
   - The time and expense for preparation?

II. Six Types of Visual Materials and How They are Used on Television

A. Graphic Materials. Charts, diagrams, outlines, summaries, and titles may be presented "on the set" (displayed before the television camera directly) so that the talent himself, or an assistant, can indicate features of the visual and control the rate of use.

B. Photographs. Enlargements from film negatives have the same "on the set" uses as graphic materials. The important parts of the picture should be kept within the essential area, and all photographs mounted on 14 ply gray cardboard backing. Often, it is more practical to take a still picture of a large or complicated display than it is to take the display into the studio. It should be noted that stills of physical objects are possible only when the talent is not required to demonstrate the display. A mat type of photographic paper is more desirable than a glossy type. The glossy photographic paper produces flare and is more difficult to light. Zooming into the interior of the picture proves effective in some instances, developing motion from the still picture.

C. 2 x 2 Slides. Slides are shown from a remotely controlled projector directly into a pre-set television camera. This operation requires no on-the-set handling. Slides may also be projected from behind and onto a translucent screen, as part of the set. Slides are used to record activities, copy materials, and present titles.

When using slides:

- The projected area must conform to the standard television format, 3 units high to 4 units wide. Slides should not be projected from an angle producing a keystone effect.
- If slides are in color, the gray scale limitations may limit their effectiveness.
- In making color slides, Extroqhroms, contrasts should be kept down. A slightly overcast day outside and low light ratio inside are preferable.
- Each slide should be numbered according to the program script.

D. 35mm Film Strips. Projectors which handle film strips are not normally a part of television. While it is possible to use film strip projectors on the set or on a multiplexer, it is preferable to prepare slides or to cut frames from a film strip (the double frame size only) and mount them as slides. Slides projected on a "good" screen (front or rear) may be taken by a camera as nearly at right angles to the screen as possible with reasonably good results. Zooming effects will add to the use of the still picture.

E. Overhead Transparencies and Overlays. Transparencies can be used effectively. Transparencies can be projected onto a front or rear screen for regular camera pickup, as with slides or still pictures.

F. Motion Pictures. Motion pictures are especially compatible with television. Film projection, like slide projection, is remotely controlled by the television director.

- Keep in mind the requirement of television--low picture contrast, the 1/6 marginal loss of picture area, and the value of close-up scenes.

- 16mm film should be used at sound speed only, 24 frames per second. (8mm can be used, but less effectively.)
- Sound-on-film can be used or the talent can narrate footage.

III. Selecting the Type of Visual to Use for a Program

The way in which visuals are used in a television program controls some aspects of their preparation. Check points are:

- Is it necessary to handle the materials?
- How can the visuals best be coordinated, paced, and given variety?
- Would it be best to develop an idea sequentially, or can the total visual be shown en masse?

IV. Displaying Visual Materials

A. Display Easel. Show graphic materials, prepared on cardboard, with either a table easel or a floor stand. A set of visuals may be placed on the stand and their use controlled by the talent or by studio personnel.

B. Flannel (Felt) Boards. This is frequently used to develop concepts or processes by the progressive addition of prepared parts.

C. Magnetic Chalkboards. Since the instructor can also write on this surface, the magnetic chalkboard is even more flexible than felt board. Small magnets are glued or attached by masking tape to the backs of objects or graphic materials and are placed on the board with the magnets at the back.

D. Multiplexer. Slides and 16mm film in a studio are generally handled on what is called the "film chain" of the television system. Visuals for a complicated television program are best placed on a multiplexer, either on 16mm or 35mm slides. This leaves the studio cameras free for production, and there is less chance of a framing error on the visual material.

E. Table-top Display. Objects can be displayed on a table top individually and in groups with or without added visuals. In this method, extreme close-ups are possible.

V. Displaying Titles and Credits

Several methods are used to display titles and credits to provide smooth transition from one card to the next. A floorman may flip cards over an easel or pull them off one at a time. Alternating between two easels and two cameras provides especially smooth transitions, but it is not always practical to tie up two cameras on opening credits.

Crawl boards are another handy device, which the camera may pan or tilt smoothly. Split crawl board titles or slides may be superimposed or screened over another camera source for special effect.

ETV/ITV GUIDE #II

APPENDICES

APPENDIX A-2

MAINTENANCE

Cleaning the Video Heads

The video heads should be kept clean at all times; otherwise the result may be poor picture quality or the appearance of black and white intermittent lines running across the picture (drop out).

Four items are needed for cleaning:

1. Iso-propyl alcohol, to loosen and dissolve residue on the rubber capstan or capstan roller.

2. Head cleaner (alcohol may be used), to remove residue from all metal surfaces. (Do not use head cleaner on any rubber or pastic surface.)

3. Cleaning swab (chamois covered tongue depresser), or cotton buds or Q-tips if care is taken to remove all cotton lint.

4. Lint-free tissues.

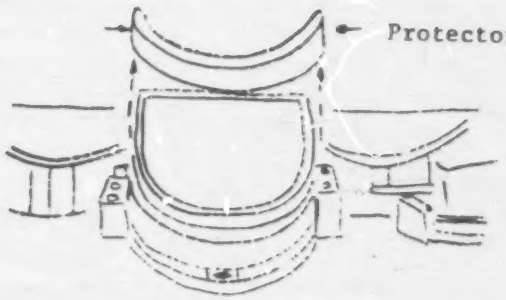
Before attempting to clean the rotary heads, be sure the power is turned OFF on the video recorder.

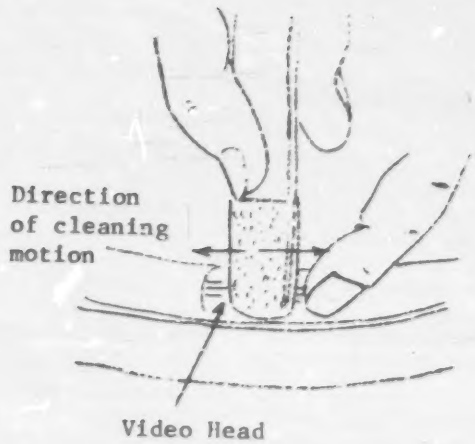
1. Remove the head protector by pushing inward on sides and pulling upward.

2. Gently hold the edge of the rotary head with a finger to keep head from moving during cleaning. Press the cleaning tip lightly against the head and clean by moving cleaning tip (or chamois) from right to left.

3. NEVER move the cleaning tip vertically, always horizontally, parallel to the video head.

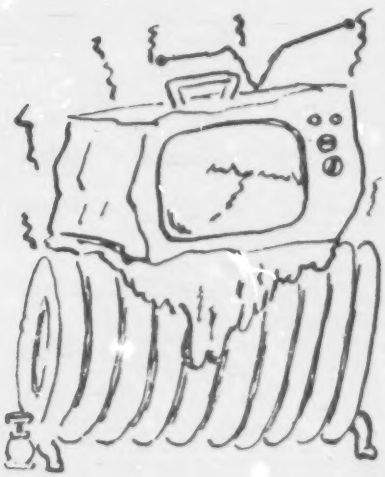
4. Move the second head on the opposite side around gently to the cleaning tip and clean in the same manner.





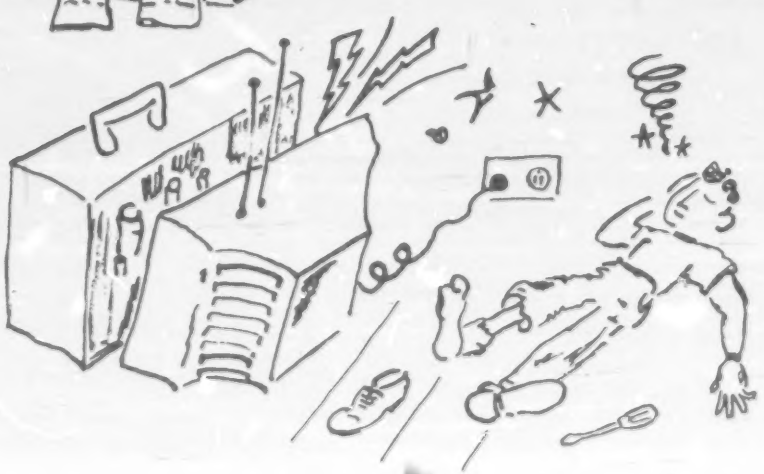
Cleaning the
Video Head

Adjust only those controls on the back of the set that are covered by the operating instructions. Improper adjustment of other controls may result in damage and will require the services of a technician to restore to proper operation.



Extreme heat, cold, or exposure to moisture will damage your receiver and a potential fire or shock hazard will result.

Don't cover set with cloth, paper, etc., so that it can not breath properly. Proper ventilation is essential.



Do not remove the back cover of the set as this can expose you to very high voltage and other hazards.

APPENDIX B-2

SAMPLE SCRIPT FOR INTERVIEW

VIDEO	AUDIO
Black to C-1 Continuous slow Zoom to single bust shot----------X of host	Good afternoon and welcome to our discussion on _____ (topic). I'm your host(ess), _____ (name).
Switch C-2, two-three shot---------X	We have with us today, _____ (name), who is _____ (title), and _____ (name) _____ (title).
Zoom to single guest one----------X	Let's begin with _____ (first guest). What is your opinion of _____ (topic question)?
	(Response from first guest)
Switch C-1, two-three shot---------X	And _____ (second guest), what is your opinion?
Zoom to single second guest----------X Truck C-2 position for single	
	(Response from second guest)
Switch C-2, single bust shot-------X	That's all the time we have for today. We would like to thank our guests and invite you to our next program of "discussion."
Slow dissolve to black----------X X X X	

C-1. Camera 1. C-2: Camera 2. Single: (or one shot) single person in frame. Two-shot or three-shot: group framed at an angle for appropriate zooming to indicated close-up. MLS: Medium long shot. Zoom in: from wide angle to close-up. Zoom out: from close-up to wide angle. Bust shot: head and shoulders. Dissolve: slow fading of picture from one format to another. Switch: direct change camera to camera.

APPENDIX C-2

COMMON MISTAKES IN BEGINNING TV PRODUCTION

CAMERA FRAMING PROBLEMS:

1. Improper Headroom
2. Improper Noseroom
3. Cutting somebody in half
4. Improper centering of talent on the screen

SWITCHING PROBLEMS:

1. Improper use of takes and dissolves
2. Poor timing between camera shots
3. Record black before and after the program

BLOCKING PROBLEMS:

1. Ineffective or no cross-shooting
2. Cameras too close to each other
3. Talent too close to the background

CAMERA MOVEMENT PROBLEMS:

1. Jerky pans, tilts and zooms
2. No use of trucks or dolly
3. No creative camera placement. By and large the cameras are used where they were left from the last use.
4. Cameras out of focus

TALENT PROBLEMS:

1. Looking into the correct camera
2. Knowing where to look for the cue signals

DIRECTING:

1. Few, if any "stand-by's" given
2. Making sure the VTR is recording both audio and video
3. Incorrect or no commands given
4. Speaking loud enough so everyone on headsets and in the control room can hear and understand
5. Watching the camera monitors instead of the program monitor

APPENDIX D-2

QUICK SERVICE CHECK LIST TROUBLE	TRY THIS IF X	Try a new channel; if OK, probably station troubles.	Is receiver plugged in? Check outlet with lamp.	Is TV receiver power switch on?	Is antenna connected to terminals on back of set?	If outside antenna, check for broken wires.	Re-orient antenna, antenna poles or loop.	Check for local interference.	Adjust VERTICAL HOLD control.	Adjust HORIZONTAL HOLD control.	Is program in color?	Adjust TINT control.	AFC to OFF and retune channel.
No Picture or Sound		X	X	X	X	X							X
Picture OK, Sound Poor		X					X	X					
Sound OK, Picture Poor		X			X	X	X	X					X
Picture Blurred		X				X	X						
Ghosts in Picture		X			X	X	X						
Lines or Streaks in Picture		X				X	X	X					
Weak Picture		X			X	X	X						
Poor Reception on Some Channels		X			X	X	X	X					X
No Color											X		X
Wrong Colors												X	
Picture Rolls Vertically		X				X	X	X	X				
Picture Distorted		X				X	X			X			
Bars on Screen						X	X	X		X			
Wrong Channel													X